

CCD-V600E

RMT-502

SERVICE MANUAL

AEP Model
UK Model



Remote commander RMT-502 is available as a unit, but as individual parts the battery case lid of commander is only available.

video Hi8 Handycam

U MECHANISM

SPECIFICATIONS

System

Video recording system

Rotary two heads
Helical scanning FM system

Audio recording system

Rotary head, FM system
(2 channels)

Video signal

PAL colour, CCIR standards

Usable cassette

8 mm video format cassettes

Tape speeds

SP mode: Approx. 2.0051 cm/sec.
LP mode: Approx. 1.0058 cm/sec.

Recording time

SP mode: 1.5 hours (E5/P5-90)
LP mode: 3 hours (E5/P5-90)

Playback time

SP mode: 1.5 hours (E5/P5-90)
LP mode: 3 hours (E5/P5-90)

Fastforward/rewind time

Approx. 7 min. (E5/P5-90)

Image device

CCD (Charge Coupled Device)

Viewfinder

Electronic viewfinder
(Black and white)

Lens

Combined 8 × power zoom
lens

f = 8.5 to 68 mm,
F1.4 with macro

Filter diameter 46 mm

Auto focus system

Infrared autofocus

Colour temperature

Auto,

☐ one push white balance,

☼ 3,200 K

☼ 5,800 K

Minimum illumination

3 lux (F1.4)

Illumination range

3 lux to 100,000 lux
(0.3 to 9,294 footcandles)

Recommended illumination

More than 100 lux
(9.3 footcandles)

Shutter speed control

1/50 to 1/10000 (16 steps)

Exposure control

Auto/manual (21 steps and
CLOSE)

Input and Output Connector

Video output

Phono jack, 1 Vp-p, 75 ohms
unbalanced, sync negative

S video output

4-pin mini-DIN
Luminance signal: 1 Vp-p,
75 ohms, unbalanced, sync
negative

Chrominance signal: 0.3 Vp-p
75 ohms, unbalanced

Audio output

Phono jacks (2: stereo L and
R), -7.5 dBs at 47 kilohms
input impedance

Impedance less than 1 kilohm

RFU DC OUT

Special mini jack, 5 V DC

Headphones jack

Stereo mini jack, 8-ohm
impedance

REMOTE  jack

Stereo mini-mini jack

Microphone jack

External stereo microphone jack:

Stereo mini jack, -66 dBs low
impedance with 2.5 to 3 V DC,
output impedance 6.8 kilohms

Microphone power output jack

Special mini jack, 5 V DC

— continued on next page —

For MECHANICAL ADJUSTMENTS, refer to the
"8mm Video MECHANICAL ADJUSTMENT MANUAL
III (U MECHANISM)" (9-972-732-11)

Hi8 VIDEO CAMERA RECORDER
SONY®



General

Power requirements	On battery mounting surface 6.0 V (battery pack), 7.5 V (AC power adaptor), 9.0 V (alkaline batteries)
Power consumption	6.9 W (camera recording, including the viewfinder)
Installation	Vertically, horizontally
Operating temperature	0° C to 40° C
Storage temperature	-20° C to 60° C
Dimensions	Approx. 105 × 142 × 350 mm (w/h/d)
Weight	Approx. 1.2 kg excluding the battery and the cassette
Microphone	Electret condensor microphone Uni-directional, stereo type
Accessories supplied	See page 4.

Design and specifications are subject to change without notice.

Note

This appliance conforms with EEC Directive 87/308/EEC regarding interference suppression.

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the B+ voltage to see it is at the values specified.

SAFETY-RELATED COMPONENT WARNING!!



COMPONENTS IDENTIFIED BY MARK  OR DOTTED LINE WITH MARK  ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

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SECTION 1 GENERAL

This section is extracted from instruction of manual.
(AEP, UK model)

Introduction

Overview of the CCD-V600E

The CCD-V600E Video Hi8 handycam is a compact colour video camera/recorder (camcorder). You can use it to shoot the pictures you want and play them back on your television set. It is equipped with a stereo recording system which offers high quality sound to match the Hi8 picture. The full featured camera section offers various camera adjustments to create just the kind of programme you wish.

Who this Manual is for

This manual is designed for you. You can use this manual to find exactly the information you need, whether you are familiar with video equipment or not.

How this Manual is Organized

This manual consists of seven sections. Section 1 explains the preliminary steps necessary to prepare for shooting and playback. Section 2 explains the very basic techniques of shooting. Section 3 explains how to playback the tape being shot in section 2. Section 4 explains additional shooting techniques which will add flavor to your programmes. Section 5 explains the unique shooting techniques including the programmed AE mode and the manual mode. Section 6 explains the techniques on how-to-edit your video programmes. Section 7 explains other useful information to enjoy the best of your camcorder.

If you have any problem during operation, see the "Trouble Checks" section.

If you are beginner, start with "Recording a picture with the automatic adjustments." If you are very familiar with camcorder operation, also refer to "Operating the Camera Section (2) and (3)" for advanced shooting techniques.

How this Manual Works

Refer to the information below to help you follow the instructions in this manual.

- Controls and settings on the camcorder are shown in capital letters:
ex. Set the **POWER** switch to **CAMERA**.
- The letter in an illustration corresponds to the letter in the text:
ex. (A-1) or (B)
- The step numbers in an illustration correspond to the step numbers in the text.

- Notes and cautions are enclosed with lines.
ex.

Note on batteries

Battery will not last as long in cold places.

Supplied Accessories

The camcorder is packed together with the following units. Check to see that everything is contained in the package.

- Wireless Remote Commander (1)
- R6 (size AA) batteries for the Wireless Remote Commander (2)
- Battery pack NP-66H (1)
- AC power adaptor AC-V35/AC-V35A (1)
- Lithium battery CR2025 (1)
- RFU adaptor RFU-90E (1), or RFU-89EA (1)
With the RFU-89EA, an aerial selector and a screwdriver are supplied.
- A/V connecting cable (3 phono to 3 phono) (1)
- Video cable with S video connectors (4-pin mini DIN to 4-pin mini DIN) (1)
- Cassette tape (1)
- Shoulder strap (1)
- Jack covers* (1 set)
- Lens cap* (1)

Items with an asterisk (*) is attached to the unit.

Technical Information

Hi8 (High Eight) Video System

The 8 mm video system employs a metal powder tape. This means the video camera recorder is capable of recording a large amount of information and enhances picture quality. Taking advantage of the 8 mm video system, the Hi8 video system has been developed. The main characteristics of the Hi8 video system are as follows:

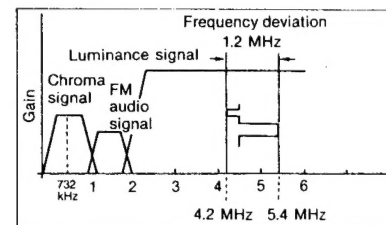
Super High Quality Picture

(A-1), (A-2)

The information capacity is a key element for picture improvement. It can be increased by shifting up the FM carrier frequency range. In the Hi8 video system, the FM carrier frequency range of the luminance signal is shifted up to 5.7–7.7 MHz. This is higher than the 4.2–5.4 MHz range of the standard 8 mm video system. Thanks to this, the horizontal resolution is improved to more than 400 lines.

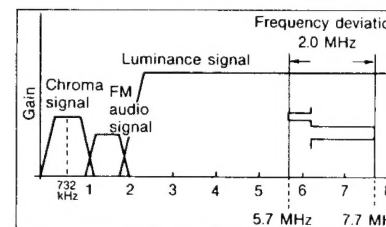
(A-1)

Frequency allocation of the standard 8 mm video system



(A-2)

Frequency allocation of the Hi8 video system



Use of High Grade Tape to Match the Hi8 Video System

Metal evaporated tape is ideal for video systems because it has large magnetic energy that allows for high-density recording. The Hi8 video camera recorder uses such high-grade tape for the Hi8 video system, covering a wide frequency range, to achieve a high-quality video signal for recording/playback.

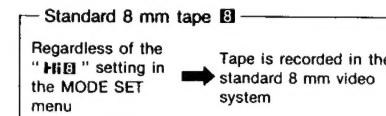
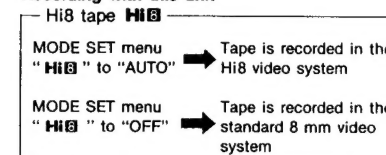
S VIDEO (Separate Luminance/ Chroma Signal) Output Connector

Conventionally, video equipment exchanges the composite video signal containing the luminance (Y) signal and the chroma (C) signal mixed. The composite video signal is liable to produce interference resulting in picture quality loss. On the contrary, an S VIDEO connector transmits the video signal separated into the luminance signal and the chroma signal. Flickers and colour blur in the picture are minimized with the separated video signal, and sharpness is enhanced to such an extent that hair and fine stripes are clearly visible. The S VIDEO connector also assures an excellent editing quality with minimum picture quality loss.

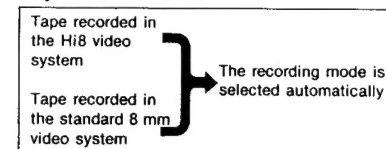
Compatibility with Conventional Video Camera Recorders


A high-quality picture can be recorded and played back on a tape for the Hi8 video system.



Recording with this unit



Playback with this unit

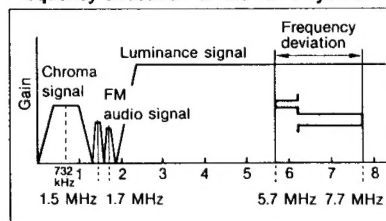


- A tape recorded in the Hi8 video system cannot be played back with an conventional 8 mm video camera recorder.
 - A standard 8 mm tape  cannot be recorded in the Hi8 video system.
 - A tape for the Hi8 video system cannot be recorded and played back in the Hi8 video system with a conventional video camera recorder.
 - The recording tape speeds in the Hi8 video system are compatible with the conventional 8 mm format.
- Recording/playback time in the SP mode is 1.5 hours using a E5-90/P5-90 tape or the equivalent.

Cassette used	With this unit		
	Recording		Playback
	Hi8	Normal	
Standard 8 mm tape 	No	Yes	Yes
Hi8 tape 	Yes	Yes	Yes

(A-3)

Frequency allocation of the Hi-Fi system



Hi-Fi Stereo System

On the 8 mm video standard track the sound is recorded/played back in AFM Hi-Fi monaural. On this camcorder, an additional AFM Hi-Fi stereo sound can be recorded on the standard track.

The AFM Hi-Fi stereo sound is recorded as L+R on the 1.5 MHz carrier and L-R on the 1.7 MHz carrier in FM as illustrated. (A-3) This method was adopted to maintain compatibility with the conventional AFM Hi-Fi monaural sound.

When playing back the tape recorded in this Hi-Fi stereo system, a matrix circuit is used to produce the L and R stereo sounds separately. When a conventional AFM Hi-Fi monaural model is used to playback a tape recorded by this camcorder in AFM Hi-Fi stereo, the playback sound will be in a L+R monaural sound. This is because the monaural models will playback only the sound recorded in the 1.5 MHz carrier.

The AFM Hi-Fi stereo system of this camcorder enables you to enjoy a live stereo sound atmosphere.

Compatibility with the conventional 8 mm video format

When you playback a tape recorded in AFM Hi-Fi stereo on a conventional 8 mm video equipment, the sound will be in monaural.

On the Menu System

The menu system of this camcorder enables setting and adjustments to further enjoy the features and functions. The menu is displayed in the viewfinder or on the TV screen if connected to a TV. The menu consists of two main parts, one for camera recording and the other for playback and editing. Refer to the following section for a quick overview of the two menus.

Menu System for Camera Recording

(B-1)

MODE SET

Various mode settings for camera recording is made in this menu.

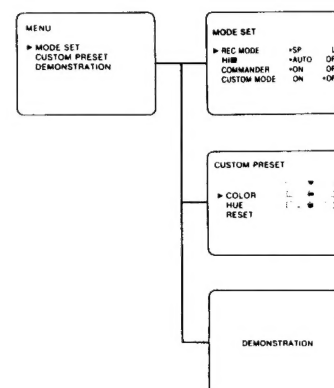
CUSTOM PRESET

The camcorder can be adjusted to perform camera recording in the desired picture.

DEMONSTRATION

The camcorder automatically shows the manual mode, four programmed AE modes, each title mode, menu displays in sequence.

(B-1)



Menu System for Playback and Editing

(B-2)

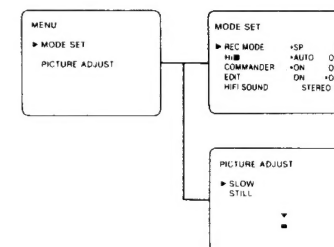
MODE SET

Various mode settings for playback and editing are made in this menu.

PICTURE ADJUST

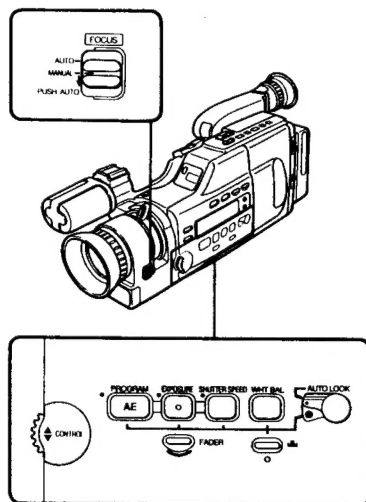
The playback picture can be adjusted to obtain maximum quality.

(B-2)



Selecting the Camera Recording Modes

(C)



(C)

Various camera recording modes are available in this camcorder. Automatic adjustment of aperture, gain, white balance, focus, plus the locked shutter speed offers worry-free camera recording for the beginner. Manual adjustment of each of these parameters offers effective camera recording to meet different object and shooting conditions.

Plus, the programmed AE mode offers additional shooting techniques to enrich the creation of your video program.

Full Automatic Adjustment Mode

When the FOCUS switch is set to AUTO, focus is automatically adjusted.

When the AUTO LOCK switch is set to AUTO LOCK, aperture, gain, and white balance are automatically adjusted and the shutter speed is locked to the normal speed (1/50).

The FOCUS switch setting has no relation with the AUTO LOCK switch setting.

Manual Adjustment Mode

FOCUS

- Set it to AUTO to activate the automatic focusing in manual adjusting mode.
- Set this switch to MANUAL to focus manually.
- Press it down during manual focusing mode, automatic focusing is activated for the extension that the switch is pressed down (PUSH AUTO).

By setting the AUTO LOCK switch down, each parameter can be adjusted manually.

EXPOSURE

- Each press of this button switches between automatic and manual adjustment.
- 21 exposure values (F16/0dB to F1.4/+18dB) plus aperture close can be selected using the CONTROL dial in the manual mode.

SHUTTER SPEED

- Each press of this button switches the shutter speed as follows:
1/50 (No indication) → 1/120
↑
1/1000
↓
- 16 shutter speeds (1/50 to 1/10000) can be selected using the CONTROL dial in the manual mode.

WHT BAL (white balance)

- Each press of this button switches the mode as follows:
Automatic → (One-push adjustment)
(no indication) ↓
↑
⬅ (Indoors) ← ➡ (Outdoors)

⬅ (One-push white balance)

- When pressed during ⬅ mode, the white balance can be adjusted manually.

Programmed AE Modes

By setting the AUTO LOCK switch down, four programmed AE modes can be selected to match distinctive camera recording conditions.

Portrait mode

Use to focus on the subject and to have the background out of focus. The aperture and shutter speed is automatically adjusted to maintain the appropriate exposure according to the size and brightness of the subject.

Sports mode

Use to shoot subjects moving at high speeds and then play it back clearly in slow or still. The aperture and shutter speed is automatically adjusted to maintain the appropriate exposure according to the speed of the subject.

Aperture priority mode

Select the desired aperture (F1.4 to F16) with the CONTROL dial and the shutter speed will be automatically adjusted to maintain the appropriate exposure.

Shutter priority mode

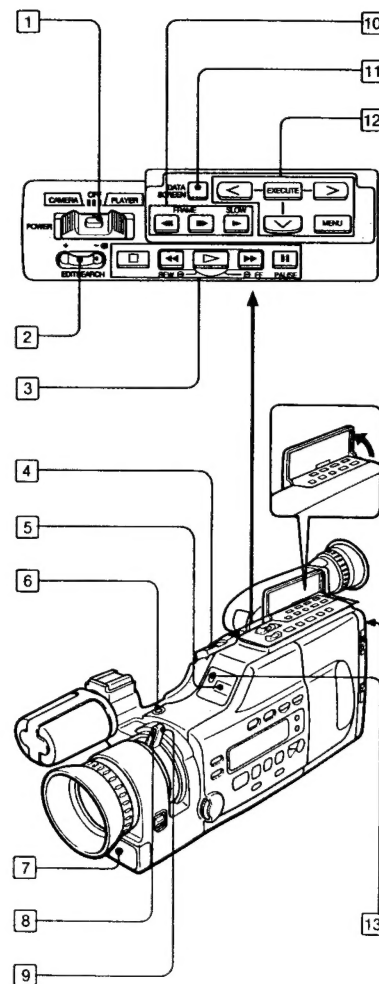
Select the desired shutter speed (1/50 to 1/10000) with the CONTROL dial and the aperture will be automatically adjusted to maintain the appropriate exposure.

Manual Mode

The shutter speed is locked to the normal speed (1/50) and the exposure is adjusted automatically. When you press the EXPOSURE and SHUTTER SPEED buttons in this mode, the exposure and shutter speed can be selected by using the CONTROL dial in the manual mode.

Note

Focus and white balance can either be adjusted automatically or manually during the programmed AE mode. The adjusting method is same as those in the "Manual Adjustment Mode."



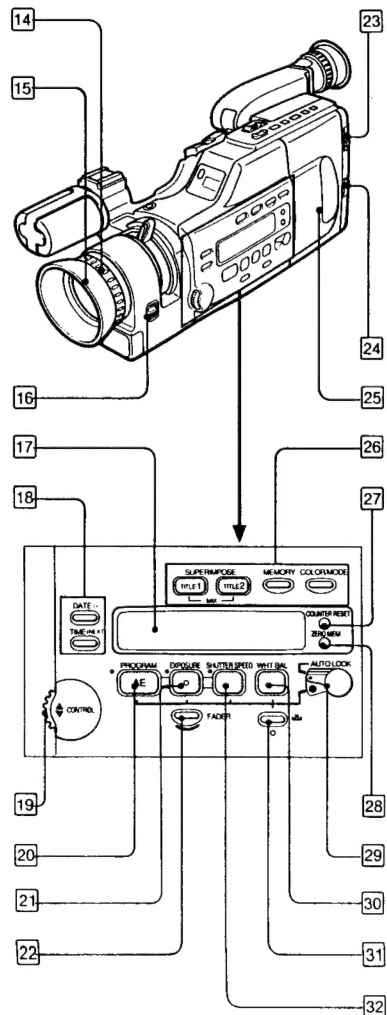
Identifying the Parts

(D-1)

For details of the use of each parts, refer to the pages indicated in ●.

- 1 **POWER switch**
CAMERA: for camera recording
PLAYER: for playing back or editing tapes
OFF: power off
- 2 **EDIT/SEARCH (and recording review) buttons** ●
- 3 **Tape transport buttons** ●, ●
□ (stop)
◀ REW (rewind)
▶ (playback)
▶▶ FF (fastforward)
|| PAUSE
- 4 **Power zoom button** ●
- 5 **Remote control sensor** ●
- 6 **REC (recording) START/STOP button for low position camera recording** ●
Use this button instead of the START/STOP button for low-position recording.
- 7 **AF (auto focus) sensor**
Measures the distance from the camcorder to the object in the auto focusing function. Do not cover with your fingers, etc.
- 8 **Macro set button (green)** ●
- 9 **Zoom lever** ●
- 10 **Tape transport buttons** ●
▶ SLOW (slow speed playback)
< ◀/▶ ▶ (direction switch/frame-by-frame playback)
- 11 **DATA SCREEN button** ●
- 12 **Menu operation buttons** ●, ●
MENU
EXECUTE
</> V
- 13 **Camera recording/battery lamps (Back cover)**
Light during camera recording. Blink when the battery is exhausted, or the tape reaches its end.

(D-2)



(D-2)

14 Focus ring

15 Lens hood

16 FOCUS switch

17 Display window

18 DATE (+)/TIME (NEXT) buttons

19 CONTROL dial

Move up or down to select the desired parameters during programmed AE mode and manual adjustment mode.

20 PROGRAM AE (programmed auto exposure) button

21 EXPOSURE button

22 FADER button

23 EJECT (cassette eject) button

24 BATT (battery eject) knob

25 Cassette holder

26 SUPERIMPOSE buttons

TITLE 1 button

TITLE 2 button

MEMORY button

COLOR/MODE button

27 COUNTER RESET button

28 ZERO MEM (memory) button

29 AUTO LOCK switch

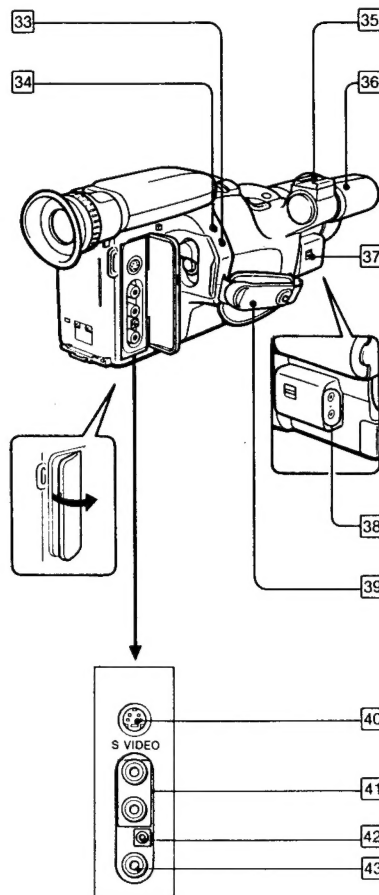
To adjust the aperture, gain, white balance automatically and the shutter speed locked to 1/50, set to AUTO LOCK.

30 WHT BAL (white balance) button

31 one-push white balance button

32 SHUTTER SPEED button

(D-3)



(D-3)

33 (headphones) jack (stereo mini jack)

34 REMOTE connector (stereo mini-minijack)
Connect a wired remote control unit, a editing controller (not supplied), etc.

35 Accessory shoe

Attach a video light, external microphone, (not supplied) etc.

36 Built-in one-point stereo microphone*

37 BUILT-IN MIC (microphone)/WIND selector

38 EXT MIC and DC OUT (microphone power output) jack
Connect an external microphone (not supplied). The DC OUT jack supplies power to it. When connecting "plug-in-power" microphones, use the MIC jack only.

39 Grip strap

40 S VIDEO output connector (4-pin mini DIN connector)

41 AUDIO L/R output jacks (phono jacks)

42 RFU DC OUT (RFU adaptor DC output) jack (special minijack)
Attach the supplied RFU adaptor here.

43 VIDEO output jack (phono jack)

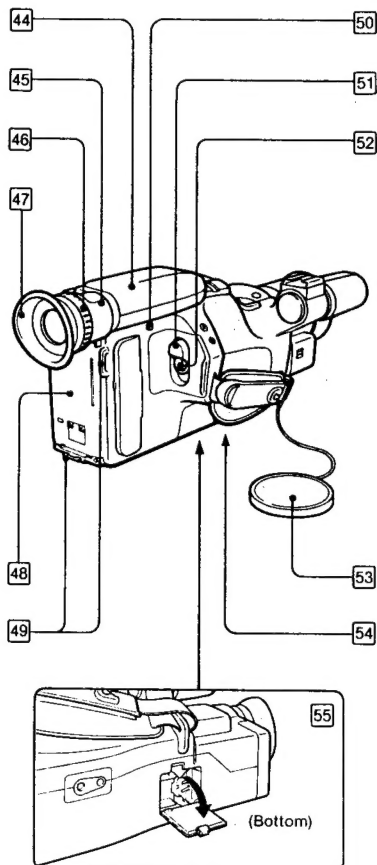
About the (LANC) mark

(LANC) stands for Local Application Control Bus System. The (LANC) connector is used for controlling the tape transport of video equipment and peripherals connected to it. This connector has the same function as the connectors indicated as CONTROL L or REMOTE.

* Note on the built-in microphone

The microphone is fixed to the camcorder. Do not turn the microphone or hold the camcorder by the microphone. This may damage the camcorder.

(D-4)



(D-4)

44 Viewfinder

The picture being recorded or played back can be monitored in black and white in here. Caution indicators, tape operation modes, function modes, menu are also displayed.

45 Sports finder

As the focal length is long, you can monitor the picture while being away from the eyecup.

46 Viewfinder lens adjustment ring

47 Eyecup

48 Battery mounting surface

49 Hooks for shoulder strap

50 PUSH SLIDE button

Press this button and slide the viewfinder to the desired position.

51 STANDBY switch

Slide up to set the camcorder to the standby mode.

52 START/STOP button

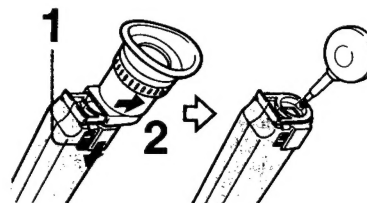
Press to start and stop camera recording.

53 Lens cap

54 Tripod receptacle (bottom)

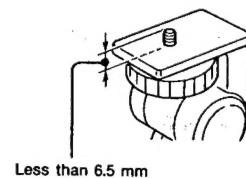
55 Lithium battery compartment (bottom)

(D-5)



To remove the dust from inside the viewfinder (D-5)
Detach the sports finder as illustrated and clean the surface of the screen with a blower.

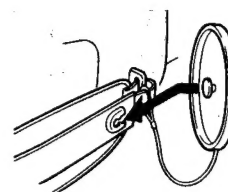
(D-6)



Note on attaching a tripod (D-6)

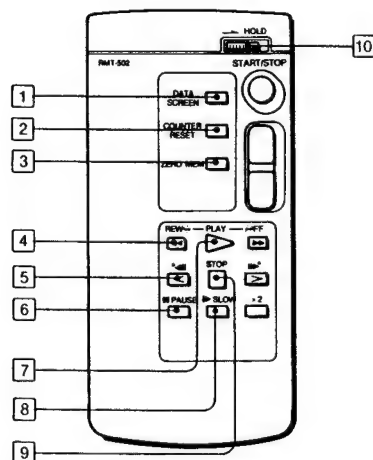
When attaching a tripod other than Sony's, make sure that the length of the camera mounting screw is less than 6.5 mm. Otherwise, the screw may damage the inner parts of the camcorder.

(D-7)



When the lens cap is removed (D-7)
Attach the lens cap to the grip strap.

(D-8)



Wireless Remote Commander

(D-8)

You can record or play back a tape from a distance. The buttons on the Commander with the same name or mark as those on the camcorder have the same function.

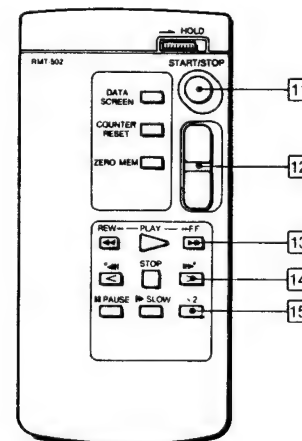
When you use the Commander

Be sure to select "COMMANDER ON" in the MODE SET menu (page 38 and 50) and then start operating the camcorder. Point the Commander to the remote sensor on the camcorder.

- 1 DATA SCREEN button
- 2 COUNTER RESET button
- 3 ZERO MEM (memory) button
- 4 REW (rewind) button
- 5 (reverse direction/reverse frame) button
- 6 PAUSE button
- 7 PLAY button
- 8 SLOW button
- 9 STOP button
- 10 HOLD switch

Provided only on the Commander.
Slide in the direction of the arrow to prevent the buttons from being accidentally depressed.

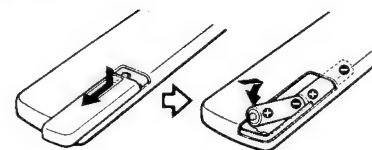
(D-9)



(D-9)

- 11 START/STOP button
Press to start and stop camera recording.
- 12 Power zoom button
- 13 FF (fast forward) button
- 14 (forward direction/forward frame) button
- 15 X 2 button
Provided only on the Commander.

(D-10)



Inserting batteries

(D-10)

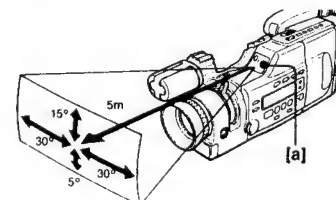
Insert two R6 (size AA) batteries with polarity positioned correctly.

Remotely controllable range

(D-11)

Point the Commander towards the remote sensor [a].

(D-11)



Notes on batteries

- The batteries will last for about six month under normal operation. However, if the Commander will not be used for a long period, remove the batteries to avoid possible damage from battery leakage.
- Do not let direct sunlight or strong light source light the camcorder's remote control sensor. Remote control with the Commander may not be effective.
- The command mode of the Commander is VTR 2. Avoid using Sony VTRs with the same command mode at the same time.

Connecting the Power Sources

First Choose the Power Source

Place	Power source	Accessory to be used
Outdoors	Battery pack	Battery pack NP-66H (supplied), NP-77H NP-77, or NP-55
	Alkaline batteries	Battery case EBP-77
Indoors	House current	AC power adaptor AC-V35/ AC-V35A (supplied), AC-V30, or AC-V55
In the car	12 V or 24 V car battery	DC pack DCP-77, or AC power adaptor AC-V55 and car battery cord DCC-16AE

Note on power sources

Disconnecting the power source or removing the battery pack during recording or playback may damage the inserted tape. If disconnected, supply the power again immediately.

Using the Battery Pack

Step 1

Charge the battery pack. (E-1)

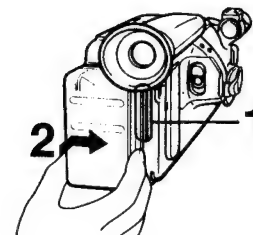
- 1 Align the groove on the battery pack with those on the AC power adaptor.
- 2 Slide in the battery pack to the right as illustrated.
- 3 Connect the AC power adaptor to a wall outlet.
- 4 Set the CHARGE/VTR selector to CHARGE. Charging begins.

	NP-66H (supplied)	NP-55	NP-77	NP-77H
Required charging time	100	60	120	140

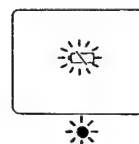
(approx. minutes using AC-V35/AC-V35A)

Refer to the operating instructions of the AC power adaptor for details.

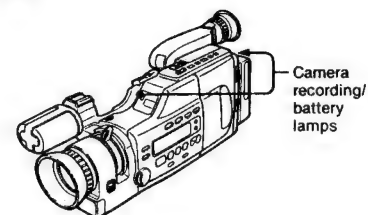
(E-2)



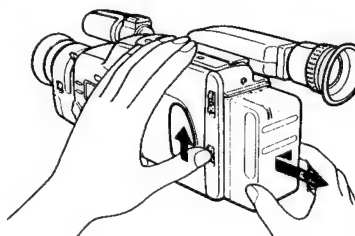
(E-3)



(E-4)



(E-5)



Step 2

Mount the battery pack on the camcorder. (E-2)

- 1 Align the right side of the battery pack with the line on the camcorder.

- 2 Slide in the battery pack to the right as illustrated.

Note


Make sure that the battery fits completely on the mounting surface of the camcorder. Imperfect mounting may damage the projections of the camcorder.

Battery life

A fully charged battery pack lasts for:

	NP-66H (supplied)	NP-55	NP-77	NP-77H
Battery life	65	35	70	90

(approx. minutes, continuous recording when used indoors)

When the battery becomes weak, the  indication and the red lamp in the viewfinder (E-3) and the camera recording/battery lamps (E-4) blink. Replace the battery pack with a fully charged one.

To remove the battery pack

(E-5)

Hold the BATT knob up, and slide the battery pack to the left.

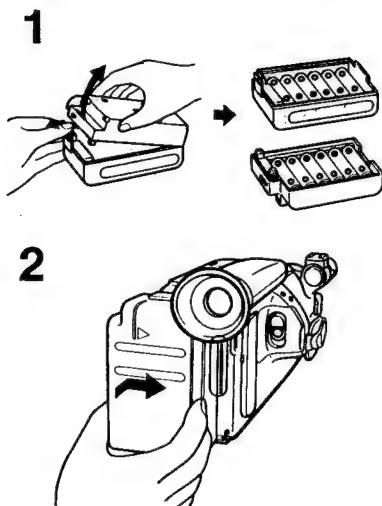
Other options

- AC-V55 AC power adaptor: You can charge two battery packs.
- DC-V30 car battery pack: You can charge a battery pack by connecting the car battery charger to the cigarette lighter socket.

If you have an NP-4000

You can use it for long outdoor recording.

(E-6)



Using Alkaline Batteries

(E-6)

The EBP-77 battery case (not supplied) is required.

- 1 Insert 12 R6 (size AA) alkaline batteries into the battery case.
You cannot use the manganese batteries.
- 2 Attach the battery case in the same way as the battery pack.

Battery life

Approximately 95 minutes under continuous recording when used indoors.

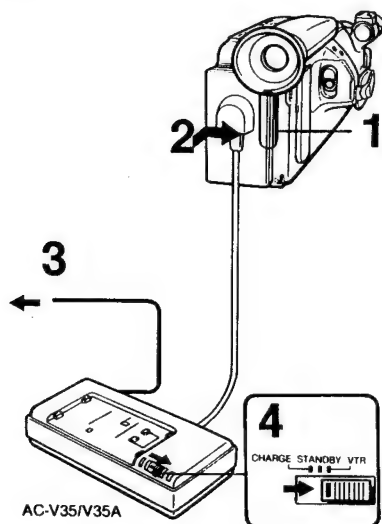
To remove the battery case

Proceed in the same way as the battery pack.

Notes on battery life while using the battery case

- Batteries does not last as long in cold places.
- No indication appears in the viewfinder to warn of a weak battery.

(E-7)



Using the House Current

(E-7)

The supplied AC-V35/AC-V35A AC power adaptor is required.

- 1 Align the right side of the connecting plate with the line on the camcorder.
- 2 Slide in the connecting plate to the right.
- 3 Connect the AC power adaptor to a wall outlet.
- 4 Set the CHARGE/VTR selector on the AC power adaptor to VTR.

See the operating instruction of the AC power adaptor for further information.

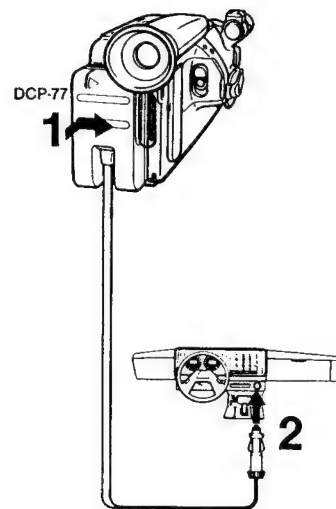
To remove the connecting plate

Proceed in the same way as the battery pack.

Other power sources

The AC-V30 or AC-V55 AC power adaptor can also be used.

(E-8)



Using the Car Battery

(E-8)

The DCP-77 DC pack (not supplied) is required.

- 1 Align the right side of the DC pack with the line on the camcorder and slide it to the right.
- 2 Connect the car battery cord to the cigarette lighter socket of a car (12 V or 24 V).

To remove the DC pack

Proceed in the same way as the battery pack.

Other options

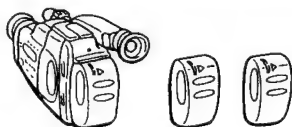
The AC-V55 AC power adaptor and the DCC-16AE car battery cord can also be used to operate this camcorder on a 12 V or 24 V car battery.

Using the Best of the Battery Pack

How to prepare the rechargeable battery packs

Have a sufficient battery pack power to perform 2 or 3 times as much recording than you have planned.

"Battery life" as indicated in the instruction manual or catalogue of the camcorder is measured by the continuous recording time of the camcorder, placed at a room temperature using a full-charged battery.

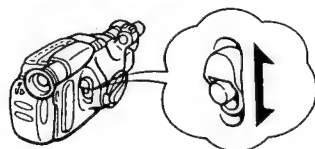


Battery life is shorter in a cold climate. Battery efficiency is decreased and the battery will be used up more quickly.




Turn the **STANDBY** switch of the camcorder off when not recording to save battery power.

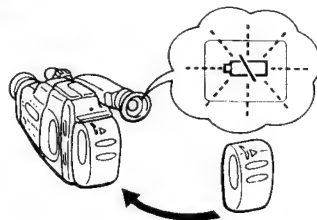
A smooth recording can be made even if recording is stopped and started again. While positioning the subject, selecting an angle, or looking through the viewfinder, the lens moves automatically and the battery is used. The battery is also used when a tape is inserted or removed.



When the rechargeable battery pack should be replaced

When the  mark in the viewfinder changes from slow blinking to rapid blinking while you are recording.



Turn off the power switch of the camcorder and replace the battery pack. Leave the tape in the camcorder in order to obtain a smooth recording after the battery pack is replaced.

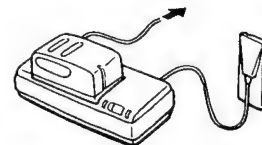


Notes on charging

Before using the battery pack, charge it sufficiently. A brand-new battery pack is not charged.

Recharge the battery pack when it is exhausted.

- If recording is completed before the  mark appears in the viewfinder, it is recommended that you remove the tape, set **POWER** to **CAMERA**, slide up **STANDBY**, and leave the camcorder until the  mark blinks rapidly.
- Repeated charging while some capacity remains causes a lowering of battery capacity. However, the original battery capacity can be recovered if you fully discharge and fully charge the battery again.



Recharge the battery pack before using.

If the battery pack is charged fully but not used for a long time (about 1 year), it becomes discharged.

Charge it again but in this case the battery life will be shorter than normal. After several charging and discharging cycles, the battery life will recover its original capacity.

Keep the terminals clean

If the terminals (metal parts on the back) are not clean, the battery duration will be shortened.

When the terminals are not clean or when the battery pack has not been used for a long time, install and remove the battery pack from time to time. This will improve the contact condition. Also wipe the + and - terminals with a soft cloth or paper.

Notes on the rechargeable battery pack

Why the battery pack heats up

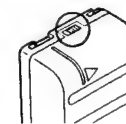
During charging or recording, the battery pack heats up. This means energy has been generated and a chemical change has occurred inside the battery pack, but this is not dangerous.

How to care for the battery pack


- Remove the battery pack from the camcorder after using it, and keep it in a cool place. When the battery pack is attached to the camcorder, a small amount of current flows to the camcorder even if the **POWER** switch is turned off. It causes overdischarging and will shorten battery life.
- The battery pack is always discharging even when it is not in use after charging. Thus, it is recommended you charge the battery before using.

How to use the switch on the battery pack

This switch is provided so that you can remember the charging condition. Set the switch to the "no mark" position when charging is completed. Set the switch to the "red mark" position when the battery is used up.



How many times can the battery pack be recharged

It can be fully charged and discharged about 500 times under normal temperatures. If the  mark blinks rapidly just after turning on the camcorder with a fully charged battery pack, the battery pack should be replaced with a new fully charged one.

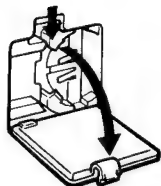
Temperature during charging

Lower temperature require a longer charging time. Charging under temperatures ranging from 10°C to 30°C is recommended.

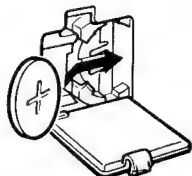
Setting the Date and Time

(F-1)

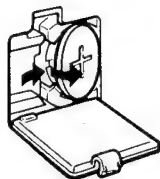
1



2



(F-2)



Inserting the Lithium Battery

(F-1)

This camcorder uses a lithium battery to activate the clock and to keep the titles in the memory.

Install the supplied lithium battery before operating it for the first time.

1 Open the cover of the lithium battery compartment on the bottom.

2 Install the supplied CR2025 lithium battery with the ⊕ side facing out.

3 Close the cover.

To remove the lithium battery (F-2)

Press the side of the battery in the direction as indicated for installation.

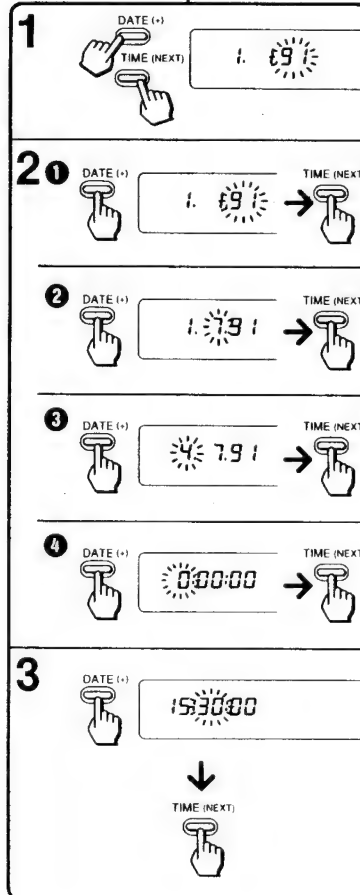
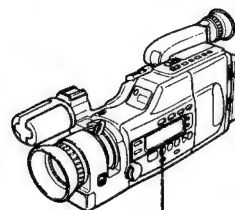
Note on lithium battery life

The lithium battery lasts for approximately 1 year under normal operation. When the lithium battery becomes weak, the time indication keeps blinking in the display window and blinks in the viewfinder for about 5 seconds when the POWER switch is set to CAMERA. In this case, keeping the battery pack or another power source connected, replace the lithium battery with a Sony CR2025. Use of other lithium batteries may present a risk of fire or explosion. If the battery pack or other power sources were not attached during the lithium battery replacement, readjust the date and time after installing a new lithium battery.

Cautions

- Keep the lithium battery out of the reach of children. Should the battery be swallowed, immediately consult a doctor.
- Wipe the battery with a dry cloth to assure a good contact.
- Be sure to observe the correct polarity when installing the battery.
- Do not hold the battery with metallic tweezers, otherwise a short-circuit may occur.
- Battery may explode if mistreated. Do not recharge, disassemble, or dispose of in fire.

(F-3)



Setting the Date and Time

(F-3)

Before you begin

- Check that a power source is installed to the camcorder.
- Set the POWER switch to CAMERA and slide the STANDBY switch up.

Operation

1 Press DATE (+) and TIME (NEXT) simultaneously for more than 2 seconds. The date indication blinks in the display window. The DATE button now functions as + (advance the number) and the TIME button functions as NEXT (execute). If you went passed the desired number, keep pressing the + button. The number eventually returns to the original one.

2 Adjust the year ①, month ②, day ③, hour ④ in this order. First, adjust the blinking digits with +, and then press NEXT.

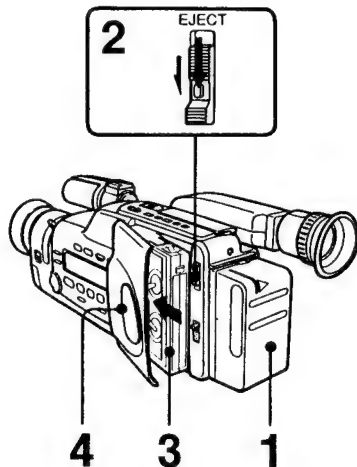
3 Adjust the minute and press NEXT to set the seconds to "00". The clock starts operating.

To correct date and time setting Repeat steps 2 and 3.

To advance the digits faster Keep pressing +.

To check the preset date and time Press DATE or TIME. When you press the same button again, the indication is changed to the counter indication.

(G-1)



Inserting Tapes

(G-1)

- 1 Check that a power source is installed.
- 2 Press and slide the EJECT button. The cassette holder automatically opens. Do not open it forcibly while it is moving.
- 3 Insert a cassette with the window facing outside.
- 4 Press the PUSH mark to close the cassette holder.

Ejecting the Tape

- 1 Check that a power source is connected.
- 2 Press and slide the EJECT button. The cassette holder automatically opens.
- 3 Take out the tape.
- 4 Press the PUSH mark to close the cassette holder.

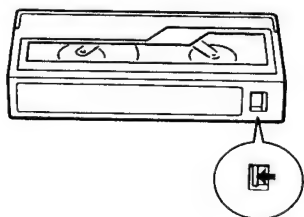
Preventing Accidental Erasure

(G-2)

Slide out the red tab on the cassette to prevent recording. To re-record on the same tape, slide the tab in.

Notes on cassette handling

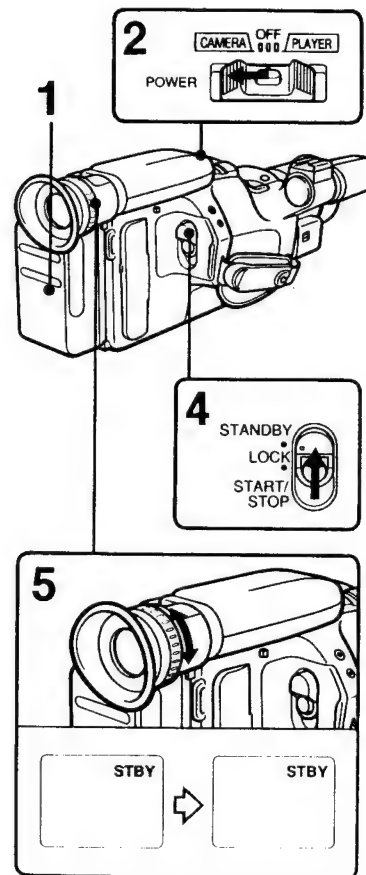
- Never insert anything in the small holes on the rear of the cassette. These holes are used to sense the type and thickness of the tape, or if the tab is out or in, etc.
- Store tapes in their cases and keep them away from heat, humidity, direct sunlight, magnetic fields, dust and mold.



(G-2)

Adjusting the Viewfinder Lens

(H)



(H)

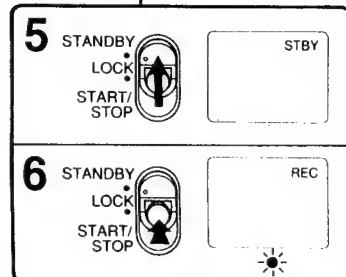
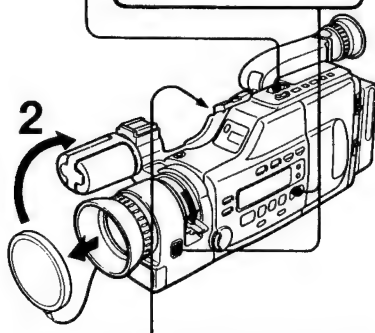
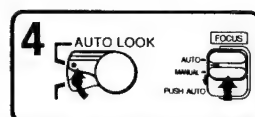
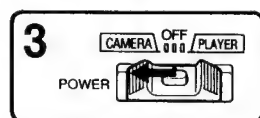
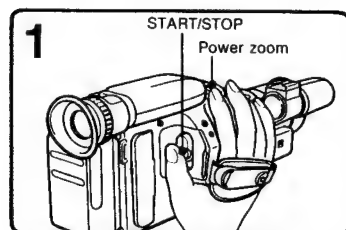
The position of the viewfinder lens for optimum vision varies depending upon the person. Adjust it when using the camcorder for the first time, or when using it after someone else.

- 1 Check that a power source is installed.
- 2 Hold down the green button and slide the POWER switch to CAMERA.
- 3 Insert a cassette.
- 4 Slide the STANDBY switch up.
- 5 Turn the viewfinder lens adjustment ring so that the "STBY" indication in the viewfinder comes into focus.

When the viewfinder touches your nose Press the PUSH SLIDE button and slide the viewfinder to the desired position.

Recording a Picture with the Automatic Adjustments

(I-1)



(I-1)

Before recording "once-only" events, we strongly recommend making a trial recording and checking that everything is working perfectly.

- 1 Hold the camcorder as illustrated. Put your hand through the grip strap and check that your thumb easily touches the START/STOP button. Do not cover the AF sensor under the lens with your fingers, etc.

- 2 Remove the lens cap and attach it to the grip belt.

- 3 Hold down the green button and slide the POWER switch to CAMERA.

- 4 Set the AUTO LOCK switch to AUTO LOCK, the FOCUS switch to AUTO and turn the zoom lever downwards.

- 5 Slide the STANDBY switch up until it clicks. "STBY" appears in the viewfinder. The camcorder is now set to the recording standby mode. The camcorder adjusts the focus automatically. Do not turn or stop the focus ring forcibly.

- 6 Press the START/STOP button. "REC" appears and the red lamp lights in the viewfinder. The camcorder is recording.

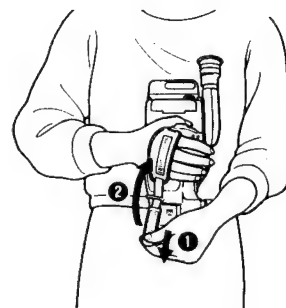
To stop recording momentarily

Press the START/STOP button again. The camcorder enters the standby mode with "STBY" indication in the viewfinder.

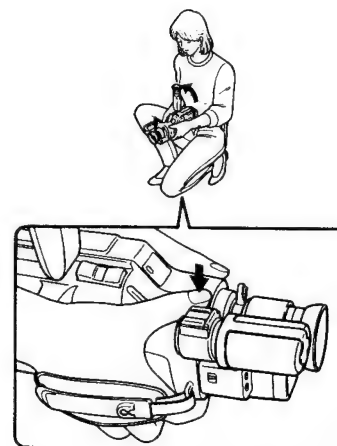
To stop recording

Slide the STANDBY switch down and set the POWER switch OFF.

(I-2)



(I-3)



How to fix the grip strap

(I-2)

In step 1 on the previous page, ① hold the camcorder pressed to your body and ② pull the grip strap upwards.

For low-position shooting

(I-3)

The viewfinder can be turned up 90 degrees. Press the REC START/STOP button in the front of the camcorder instead of the START/STOP button to start and stop the camera recording.

(I-4)

MODE SET			
▶ REC MODE	•SP	LP	
▶ Hi8	•AUTO	OFF	
COMMANDER	•ON	OFF	
CUSTOM MODE	ON	•OFF	

(I-5)

MODE SET			
▶ REC MODE	•SP	LP	
Hi8	•AUTO	OFF	
COMMANDER	•ON	OFF	
CUSTOM MODE	ON	•OFF	

How to record in the Hi8 mode

(I-4)

The camcorder is set to record in the AUTO mode which automatically records in the Hi8 mode when a Hi8 tape is used. To record in the standard mode with the Hi8 tape, change the setting in the menu.

See "Using the Menu for Camera Recording" on page 38. On the playback compatibility of Hi8 tape and standard tape refer to page 7.

When recording a long continuous programme

(I-5)

The camcorder is set to record in the SP (standard play) mode. To record a long continuous programme, change the setting in the MODE SET menu to the LP (long play) mode. In the LP mode, you can record as twice long as in the SP mode. See "Using the Menu for Camera Recording" on page 38. Also, be sure to have a sufficient battery pack.

Notes on recording

- To record from the beginning of the cassette, run the tape for about 15 seconds before recording. This will avoid missing the starting point when the tape is played back.
- If the POWER switch is moved during recording, the tape will stop.
- When moving from indoors to outdoors, or vice versa, slide the STANDBY switch up and point the camcorder at a white object for about 15 seconds so that the white balance is properly adjusted.

Note on standby mode

If you leave the camcorder in the standby mode for 5 minutes or more, the camcorder will automatically be turned off. To resume the standby mode, slide the STANDBY switch down once and slide it up again. To start recording, press the START/STOP button.

Notes on light sources

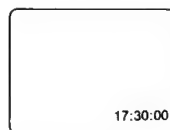
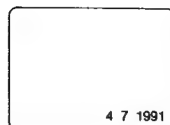
- A vertical band may appear when a subject such as a candle flame or a light is shot against a dark background.
- If you shoot an object under bright lighting conditions just after shooting in a dark place, the picture may not appear in the viewfinder. In this case, point the camcorder to another direction.

Brightness Levels

The single greatest influence on picture quality is the brightness level. Using the following chart as a reference, take a few minutes to familiarize yourself with brightness levels to improve your recording.

	Unit: lux	ND filter recommended
Snow-covered mountains Snow fields Sandy beach, clear day in summer		
Clear day, mid-day (100,000) Clear day, mid-afternoon (35,000) Overcast day, mid-day (32,000)	100,000	
Overcast day, one hour after sunrise (2,000) Office lit by fluorescent lamps, near window (1,000) Clear day, one hour before sunset (1,000)	10,000	
Department store counter (500-700) Station wicket (650) Office lit by fluorescent lamps (400-500) Room lit by two 30 W fluorescent lamps (300) Underground station platform (300)	1,000	
	500	Normal Recording
	300	
Arcade at night (150-200)	100	
Theater lobby (15-35) Candlelight (10-15)	10	Video light recommended

(I-6)

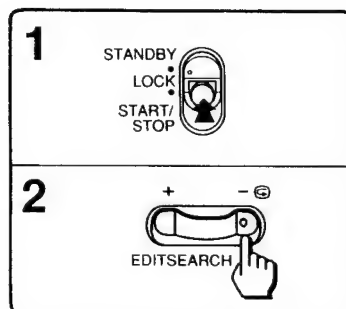


(I-7)

BUILT-IN MIC



(I-8)



To Record Date or Time

(I-6)

- 1 Set the camcorder in the camera recording standby or camera recording mode.
- 2 Press the DATE button to indicate the date or the TIME button to indicate the time. The date or time displayed in the viewfinder will be recorded together with the picture.

To stop recording date or time

Press the DATE or TIME button. The indication is cleared and the recording continues.

When there is Strong Wind

(I-7)

Set the BUILT-IN MIC selector to WIND.

The noise resulting from the wind will be reduced.

After recording, set it to the upper (green) position.

To Check the Last Portion of the Recording

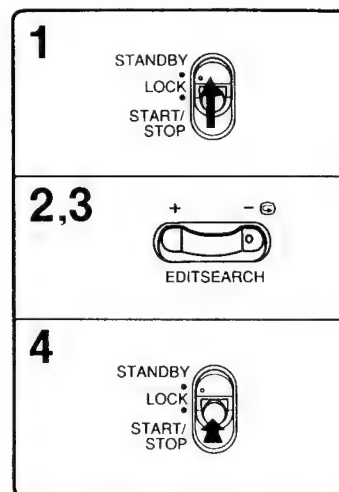
(I-8)

- 1 Set the camcorder in the recording pause mode by pressing the START/STOP button.
- 2 Press the side of the EDITSEARCH button. The last few seconds of the recorded portion is rewound and then is played back in the viewfinder. After a few seconds of playback, the camcorder returns to the recording pause mode.

If the picture was not recorded

The video heads may be contaminated. Clean the heads using the Sony V8-25CLH video head cleaning cassette or the equivalent.

(I-9)



To Re-record on a previously Recorded Portion

(I-9)

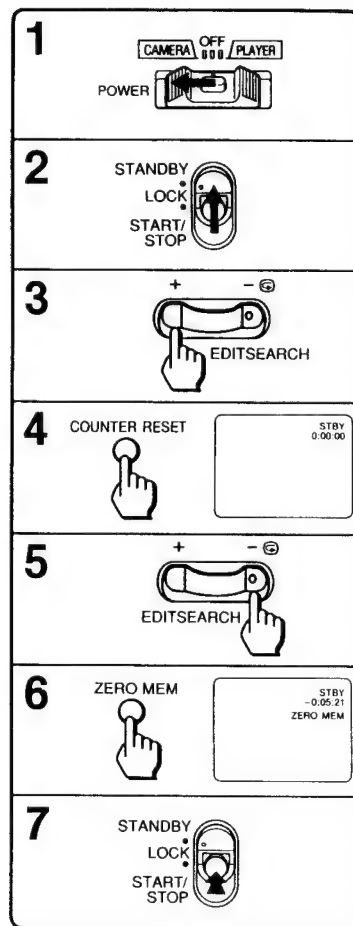
- 1 Slide the **STANDBY** switch up. The camcorder enters the standby mode.
- 2 Look in the viewfinder and search for the point from where you want to begin the recording. Keep pressing the + side of the EDITSEARCH button to advance the picture at a normal playback speed or the - side to reverse the picture.
- 3 At the desired point, release the EDITSEARCH button.
- 4 Press the **START/STOP** button to start recording.

As long as the tape is not removed, the re-recorded picture will be smoothly connected even if the **STANDBY** switch is slid down and slid up again, or the power is turned off and on.

To stop recording

Slide the **STANDBY** switch down.

(I-10)



To Re-record a Picture in the Middle of a Recorded Tape (Insert Recording)

(I-10)

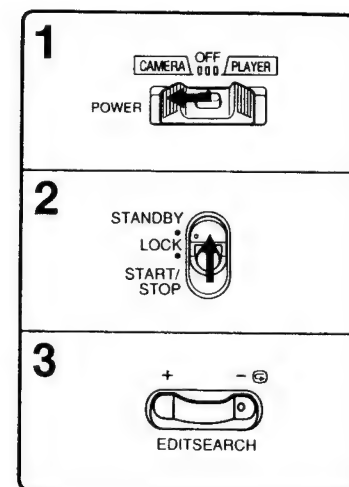
- 1** Hold down the green button and slide the POWER switch to CAMERA.
- 2** Slide the STANDBY switch up. The camcorder enters the recording standby mode.
- 3** While looking in the viewfinder, keep pressing the + or - side of the EDITSEARCH button and release it at the point where the insertion should end.
- 4** Press the COUNTER RESET button. The counter is reset to "0:00:00".
- 5** While looking in the viewfinder, keep pressing the - side of the EDITSEARCH button and release the button at the point where the insertion should start.
- 6** Press the ZERO MEM button. The ZERO MEM indication appears. The insert end point is stored in the memory.
- 7** Press the START/STOP button. Insert recording starts. It stops automatically around the counter zero point.

To change the end point of the edit
Press the ZERO MEM button so that the ZERO MEM indication disappears. Start from step 3.

Note

The picture may be distorted at the end of the inserted portion when it is played back.

(I-11)



Playing Back the Picture Instantly

(I-11)

You can check the recorded picture in the viewfinder. The sound is not heard.

- 1** Hold down the green button and slide the POWER switch to CAMERA.
- 2** Slide the STANDBY switch up.
- 3** Keep pressing the + or - side of the EDITSEARCH button to playback the picture.
+ side: To view the playback picture.
- side: To view the playback picture in reverse.

To stop playback

Release the EDITSEARCH button.

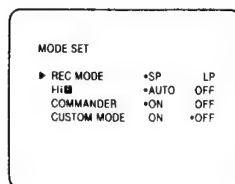
To monitor the sound while viewing the playback picture in the viewfinder

- 1** Connect the headphones to the jack.
- 2** Hold down the green button and slide the POWER switch to PLAYER.
- 3** Press to rewind the tape and press where you want to start playing back.
- 4** Press to start playback.

Using the Menu for Camera Recording

MODE SET menu, CUSTOM PRESET menu, and DEMONSTRATION menu can be used for camera recording. In the MODE SET menu, various settings to further enjoy the features of the camcorder can be selected. In the CUSTOM PRESET menu, the camcorder can be set to record in the desired picture tone. In the DEMONSTRATION menu, the camcorder displays the various indications and the operations available.

(J-1)



MODE SET Menu

(J-1)

REC MODE SP/LP

- Select SP to record in the SP (Standard play, approximately 2.0051 cm/second) mode.
- Select LP to record in LP (Long play, approximately 1.0058 cm/second) mode. It is useful for recording a long continuous programme. The quality of the playback picture in the LP mode, however, will not be as good as that in the SP mode.

HI8 AUTO/OFF

- Select AUTO to set the recording mode (Hi8 or normal) automatically depending upon the tape being used.
- Select OFF if you wish to record in the normal mode regardless of the type of tape being used.

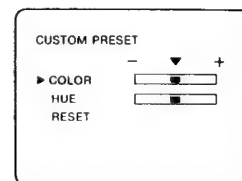
COMMANDER ON/OFF

- Select ON when using the supplied Commander for camera recording.
- Select OFF when the supplied Commander will not be used for camera recording.

CUSTOM MODE ON/OFF

- Select ON to perform camera recording based on the setting made in the CUSTOM PRESET menu. See page 98.
- Select OFF to perform camera recording without the setting made in the CUSTOM PRESET menu.

(J-2)

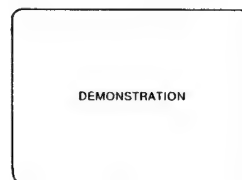


CUSTOM PRESET Menu

(J-2)

The camera can be preset to record in the desired picture using the CUSTOM PRESET menu. The items that can be preset are COLOR and HUE. See "Custom Preset Function" on page 98 for details.

(J-3)



DEMONSTRATION Menu

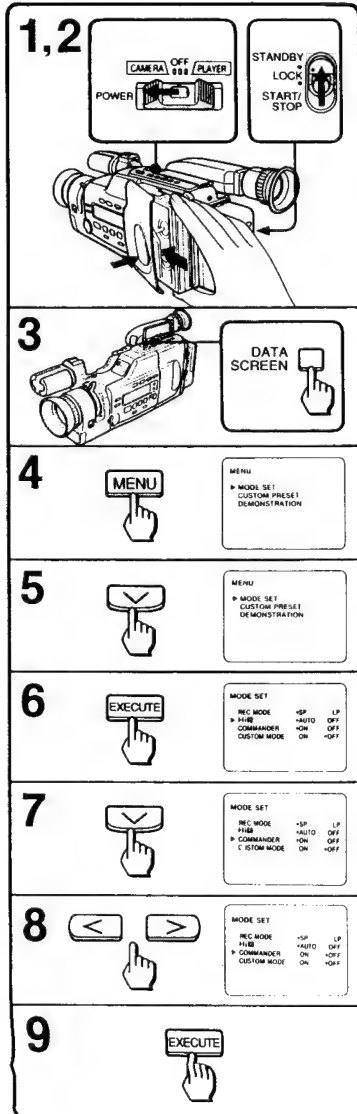
(J-3)

The camcorder will automatically demonstrate the manual modes, programmed AE modes, title modes, MODE SET menu for camera recording, and the CUSTOM PRESET menu. The sequence can be monitored in the viewfinder or on a TV screen if connected.

Operation

- 1 Store 2 titles in the memory referring to pages 64 to 66.
- 2 To monitor the sequence on the TV screen, connect the camcorder and the TV referring to pages 41 to 43 and press DATA SCREEN.
- 3 Call up the MENU display and select DEMONSTRATION referring to page 40.
- 4 To get out of the DEMONSTRATION menu, press <, >, or ∨. To return to the MENU display, press MENU.

(J-4)



How to Call Up the Menu Display

(J-4)

Example: To select COMMANDER OFF.

- 1 Set the POWER switch to CAMERA and insert a cassette.
- 2 Slide the STANDBY switch up.
- 3 Press the DATA SCREEN button to display the menu on the TV screen.
- 4 Press the MENU button. The MENU display appears.
- 5 Press ∇ and move cursor to the desired item.
- 6 Press the EXECUTE button. The selected menu appears.
- 7 Press ∇ and move cursor to the desired item.
- 8 Press $<$ or $>$ to select the desired setting.
- 9 Press the EXECUTE button. The setting is stored in the camcorder and the menu display is cleared from the viewfinder.

The setting is stored in the memory even if the POWER switch is set to OFF or the battery pack is removed, as long as the lithium battery is installed.

To display another menu

Start from step 1 in "How to Call Up the Menu Display."

To return to the original screen

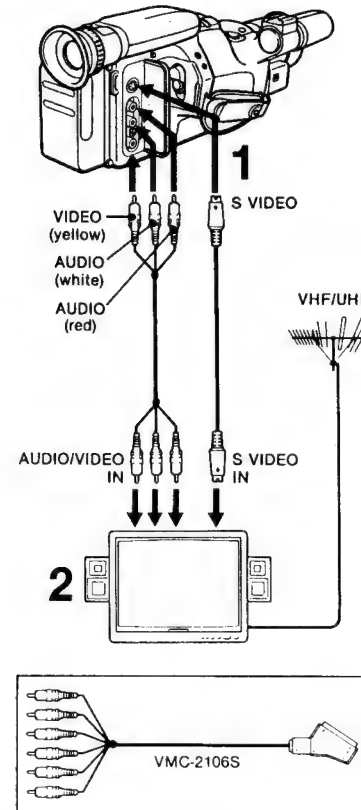
Press the MENU button.

To make multiple settings within one menu

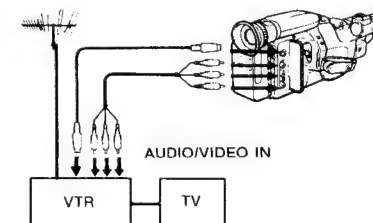
After step 7 in "How to Call Up the Menu Display", press ∇ and move cursor to the desired item.

To clear the indication from the TV screen Press the DATA SCREEN button again.

(K-1)



(K-2)



Connections for Playback

To view the playback picture on the TV screen, the camcorder and TV and/or the VTR must be connected properly. Check the following connecting examples and go to the appropriate section to make the connections required.

Case 1: Connecting the camcorder to a TV with video/audio input jacks.

Case 2: Connecting the camcorder to a TV without video/audio input jacks.

For the camcorder supplied with the RFU-90E RFU adaptor.

Case 3: Connecting the camcorder to a TV without video/audio input jacks.

For the camcorder supplied with the RFU-89EA RFU adaptor.

Case 1: Connecting to a TV with Video/Audio Input Jacks

(K-1)

- 1 Connect the camcorder and the TV using the supplied AV connecting cable.

- If your TV has an S video input jack, connect the S VIDEO jack on the camcorder and the S video input jack on the TV using the supplied S VIDEO connecting cable.
- If your TV is a monaural type, connect only the white plug for audio on the TV and select "HIFI SOUND [1]" in the menu. See "Selecting the Monitor Sound" on page 48.
- If your TV has a 21-pin connector, use a connecting cable such as the VMC-2106S (not supplied).

- 2 Set the TV/VIDEO selector on the TV to VIDEO.

If your TV is connected to VTR

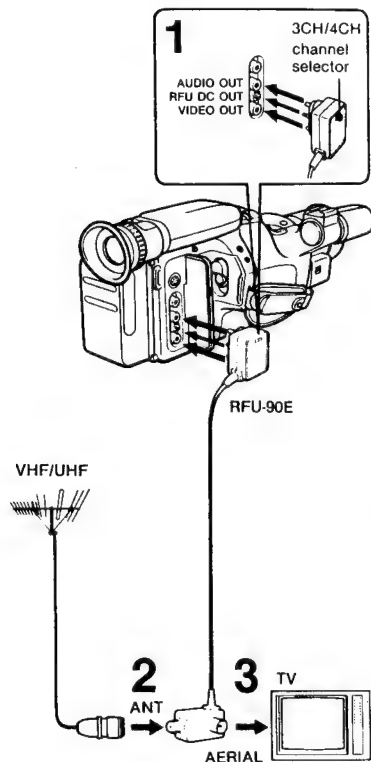
(K-2)

Connect the camcorder to the VTR instead of TV.

Note

For details on the TV, refer to the operating instructions of the TV.

(K-3)



Case 2: Connecting to a TV without Video/Audio Input Jacks

For the camcorder supplied with the RFU-90E RFU adaptor (K-3)

Step 1

Connecting the camcorder, the RFU adaptor, and the TV.

- 1 Connect the RFU adaptor to the camcorder.
- 2 Connect the aerial and the RFU adaptor.
- 3 Connect the RFU adaptor to the TV.

Step 2

Selection of the TV programme position to monitor the camcorder playback.

- 1 Set the RF unit selector on the RFU adaptor to either 3CH or 4CH, whichever is not active in your area.
- 2 Turn on the TV and select the 0 position.
- 3 Tune the TV so that picture and sound from the camcorder are received.

Notes

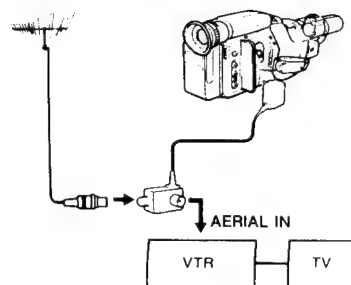
- Whenever playing back a tape, be sure to set the TV to the 0 position.
- In this connection, the sound will be in monaural.
- When you watch a TV programme, turn off the camcorder or disconnect the RFU adaptor from the camcorder.

If your TV is connected to a VTR

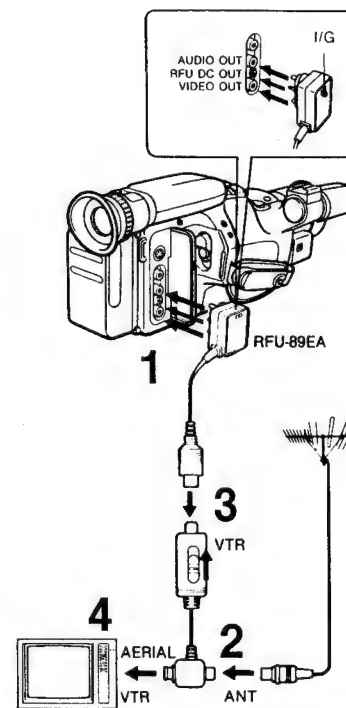
(K-4)

Connect the camcorder to the VTR instead of TV.

(K-4)



(K-5)



Case 3: Connecting to a TV without Video/Audio Input Jacks

For the camcorder supplied with the RFU-89EA RFU adaptor (K-5)

Step 1

Connecting the camcorder, the RFU adaptor, and the TV

- 1 Connect the RFU adaptor to the camcorder.
- 2 Connect the aerial and the aerial selector.
- 3 Set the ANT/VTR selector on the aerial selector to VTR.
- 4 Connect the aerial selector to TV.

Step 2

Selection of the TV programme position to monitor the camcorder playback.

- 1 Set the I/G selector on the RFU adaptor according to the TV system used in your area.
- 2 Turn on the TV and select a programme position that is not active in your area.
- 3 Set the POWER switch of the camcorder to CAMERA and slide the STANDBY switch up.
- 4 Tune the TV so that the picture and sound from the camcorder is received. (For details, refer to the operating instructions of the TV.)

When the playback picture is not free of disturbance

- 1 Set the ANT/VTR selector on the aerial selector to ANT.
- 2 Select a programme position between UHF channels 30 and 39, so that the TV shows no picture and a steady resting sound or no sound is heard.
- 3 Set the ANT/VTR selector on the aerial selector to VTR.
- 4 Turn the screw on the RFU adaptor slowly with the supplied screwdriver so that the playback picture is clearly displayed on the TV screen. (K-6)

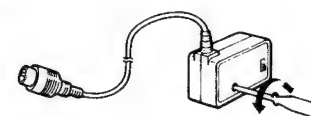
If your TV is connected to a VTR (K-7)

Connect the camcorder to the VTR instead of the TV.

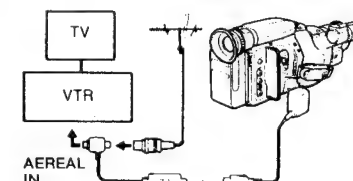
Note

In this connection, the sound will be in monaural.

(K-6)

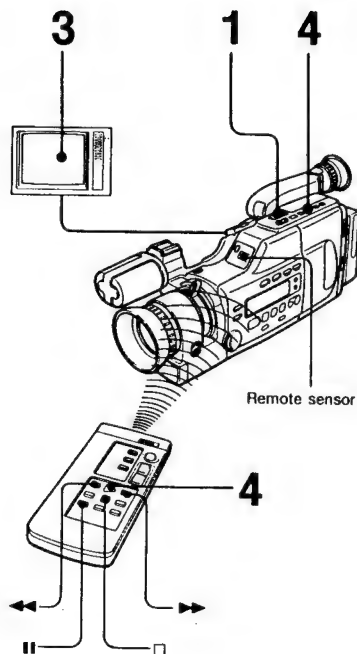


(K-7)



Playing Back a Tape

(L-1)



Use the buttons on the camcorder as well as the buttons on the Commander. The Commander is useful when operating the camcorder from a distance. Be sure to select COMMANDER ON in the menu before operation. (See page 50.)

- When you use an optional wired remote commander, set to COMMANDER OFF.
- When you use the AC power adaptor, set the CHARGE/VTR selector to VTR.

Operation

(L-1)

1 Hold down the green button and slide the POWER switch to PLAYER.

2 Insert a cassette.

3 Turn on the TV and the VTR.

- For a TV with video/audio input jacks: Set the TV/VIDEO selector to VIDEO.
- For a TV without video/audio input jacks: Select the programme position for playing back the camcorder.

4 Press \triangleright . Playback starts. The \triangleright on the camcorder can also be used.

To view a still picture
Press \parallel during playback.

To resume playback
Press \triangleright or \parallel again.

To stop playback
Press \square .

To rewind the tape
Press \square and then \lll .

To advance the tape rapidly
Press \square and then \ggg .

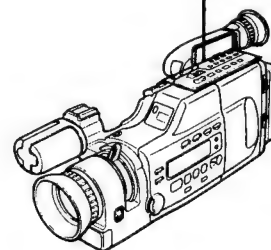
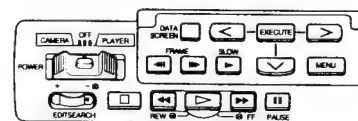
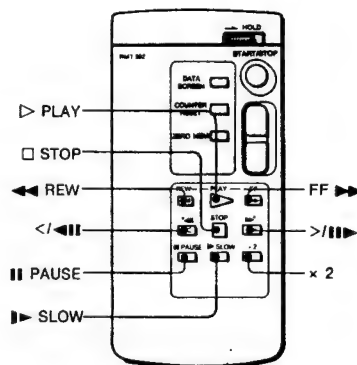
After playback

Set the POWER switch on the camcorder to OFF and the CHARGE/VTR selector on the AC power adaptor to STANDBY.

Notes

- When the still picture lasts for 5 minutes or more, the camcorder automatically enters the stop mode.
- This camcorder plays back a tape recorded in the SP and LP mode. The playback mode is automatically switched depending upon the mode of the recorded tape inserted.

(L-2)



Various Playback Modes

(L-2)

To view a still picture (playback pause)
Press \parallel during playback.

\lll or \ggg appears in the viewfinder.
To resume normal playback, press \triangleright or \parallel .

To change the playback direction

Press \lll for the reverse or \ggg for the forward direction during playback.
-x1 or x1 appears in the viewfinder.
To resume normal playback, press \triangleright .

To view the picture at 1/5 speed (slow playback)

Set the playback direction with \lll or \ggg , and then press \parallel during playback.
 \lll or \ggg appears in the viewfinder.
When slow playback lasts for 1 minute or more, forward or reverse playback at normal speed starts automatically, according to the tape direction.

To resume normal playback, press \triangleright .

To view the picture at double speed (Commander only)

Set the playback direction with \lll or \ggg , and then press x2 on the Commander.
-x2 or x2 appears in the viewfinder.
To resume normal playback, press \triangleright .

To view the picture frame-by-frame

Press \lll or \ggg in the still picture mode. Each press of the button moves the picture one frame. \lll or \ggg appears in the viewfinder momentarily. If you keep pressing \lll or \ggg , playback at 1/25 speed starts. To resume normal playback, press \triangleright .

To locate the desired scene — Picture search
Keep pressing \lll or \ggg during playback in the still picture mode. \lll or \ggg appears in the viewfinder.

To resume normal playback, release the button.

To locate the desired scene quickly — Skip scan

Press \lll while rewinding or \ggg while advancing the tape rapidly. \lll or \ggg appears in the viewfinder.

To resume normal playback, press \triangleright .

Notes during the various playback

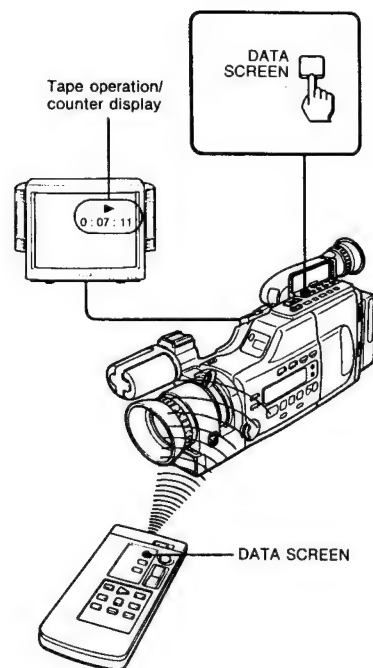
- Sound can be heard in the double speed forward playback.
 - The sound has noise.
 - With a stereo tape, the sound is heard in monaural.
 - With a dual sound recorded tape, the main sound is heard.
- Noise may appear in the still picture.
- Streaks may appear when pressing the ◀◀ or ▶▶
- Streaks may appear when playing back a tape recorded in the LP mode in the still, frame-by-frame, or slow.
- The colour of the picture may change during still, frame-by-frame, slow or when using the ◀◀ or ▶▶ button.

If picture is noisy during frame-by-frame or slow playback

Adjust the picture referring to "PICTURE ADJUST menu" (page 51) while playing back the tape in slow speed.

However, the noise may not be completely eliminated.

(L-3)



Displaying the Information in the Viewfinder onto the TV Screen

(L-3)

Connect the camcorder and the TV properly and press the DATA SCREEN button. The indication in the viewfinder is superimposed on the TV screen. This function is convenient to monitor the indications in the viewfinder during menu operations or when the camcorder is remotely operated by the Commander.

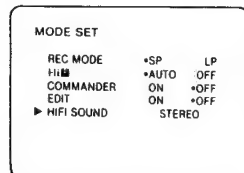
To clear the indication

Press the DATA SCREEN button again.

Note

When using the camcorder as a playback VTR during editing, be sure to clear the indications from the TV screen. Otherwise, the indications will be recorded with the picture.

(L-4)



Selecting the Monitor Sound

(L-4)

The playback sound can be selected by the menu.

Refer to "Using the Menu for Playback or Editing" (page 50) for details.

When playing back a dual sound recorded tape

Normally set the HIFI SOUND setting to STEREO. When the dual sound recorded tape is played back, select [1] or [2] to hear the desired sound.

Note

Always return the setting to STEREO. Otherwise, the tape recorded in stereo will not be played back properly.

Note on PCM recording and playback

This camcorder cannot perform PCM recording or playback.

Using the Tape Counter

The counter in the viewfinder and the display window indicates the elapsed time of the recording or playback.

To Index the Entire Tape

Press the COUNTER RESET button at the beginning of the tape so that the counter shows "0:00:00".

Write down the counter reading at a particular point so that you can easily find that point later by referring to the tape counter.

To Return to a Pre-registered Point

(M)

1 During playback, press the COUNTER RESET button at the point to be located later.

2 Press [] when the playback is finished.

3 Press the ZERO MEM button.
The "ZERO MEM" indication blinks in the viewfinder and the display window.

4 Press [◀] or [▶].
The tape rewinds or advances and stops automatically when the counter reaches approximately "0:00:00".

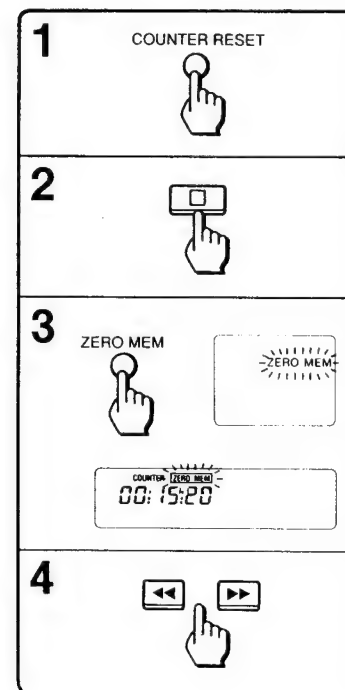
To cancel the ZERO MEM function

Press the ZERO MEM button.

Notes on the counter and the ZERO MEM button

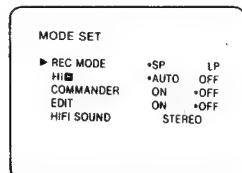
- The counter reading and the actual point on the tape may not correspond exactly. Use the counter as a guide. There will be a lag of several seconds especially when fast-forward and rewind operation is repeated or when playing back a tape with both the SP mode and LP mode recording.
- Be sure to press the ZERO MEM button after the tape stops. It does not function during recording or playback.
- The ZERO MEM mode is automatically canceled after each operation.

(M)



Using the Menu for Playback or Editing

(N-1)



MODE SET menu and PICTURE ADJUST menu can be used for playback or editing. In the MODE SET menu, various settings to further enjoy the features of the camcorder can be selected. In the PICTURE ADJUST menu, the picture in the still or slow mode can be adjusted.

MODE SET Menu

(N-1)

COMMANDER ON/OFF

- Select ON when using the supplied Remote Commander for playback or editing.
- Select OFF when you do not use the supplied Remote Commander, or when you use an optional wired Remote Commander for playback or recording.

EDIT ON/OFF

- Select ON when performing editing with the camcorder as the playback VCR to keep the degradation of picture resulting from editing to the minimum.
- Select OFF otherwise.

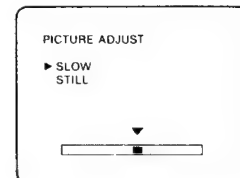
HIFI SOUND STEREO/[1]/[2]

- Normally select STEREO. The tape recorded in AFM Hi-Fi stereo will be played back in stereo.
- Select [1] or [2] to play back the desired sound of the dual sound recorded tape.

Note

REC MODE SP/LP and HIFI AUTO/OFF setting can be selected during camera recording.

(N-2)



PICTURE ADJUST Menu

(N-2)

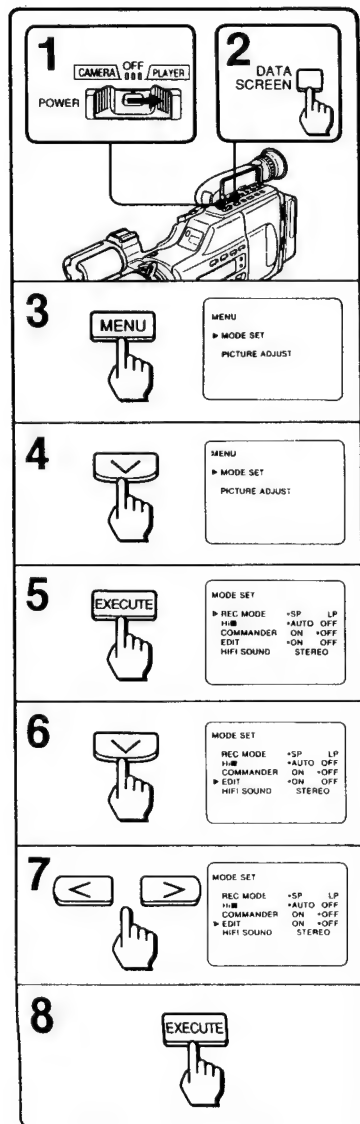
SLOW

Press < or > to clear out the noise bands that may appear on the top or bottom of the picture during slow playback. Adjustable only in the slow playback mode.

STILL

Press < or > so that the vertical shaking of the picture during still mode will stop. Adjustable only in the still mode.

(N-3)



How to Call Up the Menu Display

(N-3)

Example: To select EDIT OFF.

- 1 Set the POWER switch to PLAYER and insert a cassette.
- 2 Press the DATA SCREEN button to display the menu on the TV screen.
- 3 Press the MENU button.
The MENU display appears.
- 4 Press ∇ and move cursor to the desired item.
- 5 Press the EXECUTE button.
The selected menu appears.
- 6 Press ∇ and move cursor to the desired item.
- 7 Press $<$ or $>$ to select the desired setting.
- 8 Press the EXECUTE button.
The setting is stored in the memory and the menu display is cleared from the viewfinder.

The setting is stored in the memory even if the POWER switch is returned to OFF or the battery pack is removed, as long as the lithium battery is installed.

To display another menu

Start from step 1 in "How to Call Up the Menu Display."

To return to the original screen

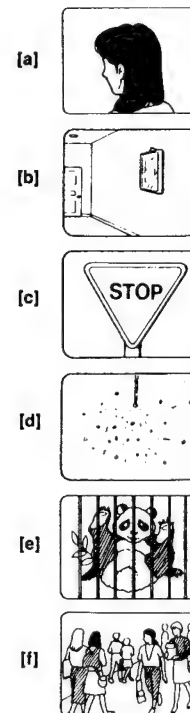
Press the MENU button.

To make multiple settings within one menu

After step 6 in "How to Call Up the Menu Display", press ∇ and move cursor to the desired item.

To clear the indication from the TV screen
Press the DATA SCREEN button again.

(O-1)



Manual Focusing

When the FOCUS switch is set to AUTO, the auto focusing functions to easily get a in-focused picture under most shooting conditions. In the auto focusing function, the object is shot between 0.7 to 20 m away from the unit. But manual focusing is recommended under the following cases:

[a] to [f] corresponds to the illustrations. (O-1)

- [a] **Black objects which absorb the infrared beam**
Ex. dark curtains or shade
- [b] **Objects in which the infrared reflection disperses**
Ex. a smooth slanting surface (Auto focusing functions when the camera is aimed squarely at the subject.)
- [c] **Objects in which the infrared beam is reflected too much**
Ex. traffic signs, a white wall, a mirror, or a subject through plate glass
- [d] **Objects not solid**
Ex. fireworks, candle flame or smoke
- [e] **When there are other objects between the shooting object and this unit**
Ex. an animal inside a cage or baby inside a cot
- [f] **Moving objects**
Ex. a crowd or sports with lots of movement
 - **Objects which emit infrared beams themselves**
Ex. automatic doors or fluorescent lights
 - **Objects more than 20 meters away from the recorder**
Especially with an overcast day, or at night.

When the auto focusing does not function momentarily

- The camcorder is rapidly panned from a distant subject to a nearby subject with less contrast.
- Shooting fast moving objects.

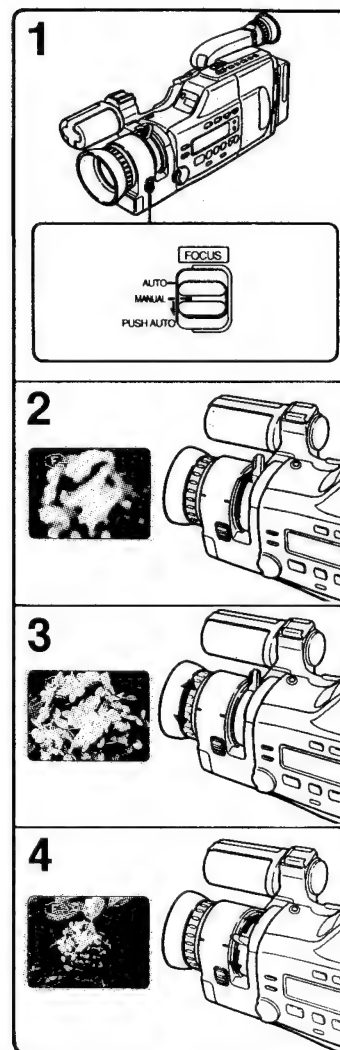
Some helpful hints

- When shooting relatively dark places, such as indoors, the depth of field in proper focus is very shallow.
- The figures on the focus ring indicate the distance between the object and the Φ mark on the camcorder.

The subjects in focus in the viewfinder in the auto focusing mode

When shooting the subject at 3 m, the focusing point of the object in the viewfinder will be in the center. When the subject is more than 3 m away, objects a little to the upper left of the center tend to be in focus. When the subject is less than 3 m away, objects a little to the lower right of the center tend to be in focus. This tendency becomes apparent when shooting a subject at less than 1 m.

(O-2)

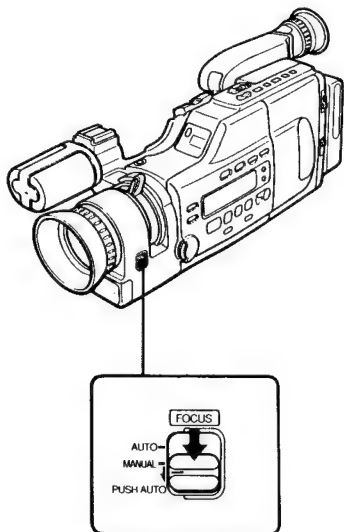


Focusing Manually

(O-2)

- 1 Set the FOCUS switch to MANUAL. Check that the manual focus mark (Φ) appears in the viewfinder.
- 2 Turn the manual zoom lever fully to the telephoto position.
- 3 Turn the focus ring to achieve sharp focus.
- 4 Move the zoom lever to set to the desired shot length.

(O-3)



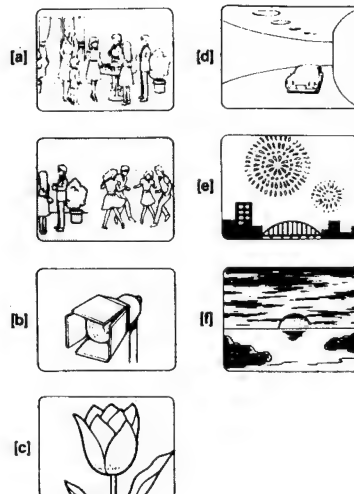
Shooting with Auto Focusing Momentarily

(O-3)

While shooting with manual focusing, press the FOCUS switch down (PUSH AUTO). The auto focus functions while you are pressing the FOCUS switch down.

When the switch is released, manual focusing will resume. Use this switch when focusing on one object to the other for natural focusing. Shutter speed, white balance, aperture, and/or programmed AE modes will be retained to the previous setting.

(P-1)



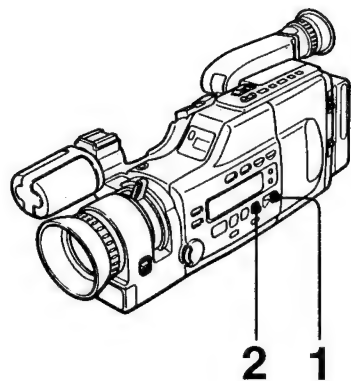
Adjusting the White Balance

In order to record the colour of the object as it is, the common method is to adjust the camcorder to record the white colour as white in various shooting conditions. This is accomplished by adjusting the white balance. When the AUTO LOCK switch is set to AUTO LOCK, the auto white balance function adjusts the white balance under most shooting conditions. But to record the colour of the subject more precisely, without being affected by the colour temperature of the ambient light, adjust the white balance manually.

[a] to [f] corresponds to the illustrations. (P-1)

	Conditions	Indication in the viewfinder
[a]	Lighting conditions change quickly	⚡
[b]	Too bright, such as in photograph studios	
[c]	Monochromatic subject or background	🎨
[d]	Under a sodium lamp	💡
	Under a mercury lamp	
	Under a colour matching fluorescent lamp	☀️
[e]	Recording outdoors: a night view, neon signs, or fireworks	
[f]	Recording outdoors: scenes after sunset or before sunrise	

(P-2)



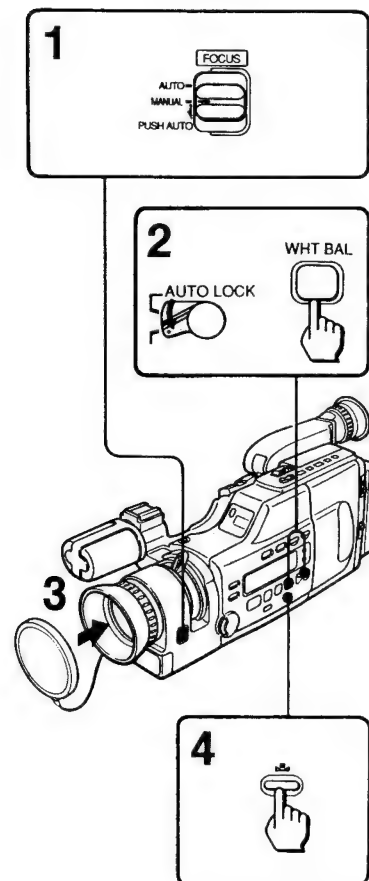
Adjusting the White Balance Manually

(P-2)

- 1 Set the AUTO LOCK switch down.
- 2 Set to the appropriate white balance mode by pressing the WHT BAL button. The indication changes in the order below each time the button is pressed.

No indication → → →
↑ (auto)

(P-3)



Adjusting the White Balance Precisely

(P-3)

The one-push white balance function adjusts the white balance at the press of the button and maintains that condition. When the lighting condition changed or when recording subjects with different colour temperature, use the one push white balance function to achieve recording with natural colours without being affected by the ambient light.

- 1 Set the FOCUS switch to MANUAL.
The camcorder enters the manual focus mode.
- 2 Set the AUTO LOCK switch down and press the WHT BAL button to call up the indication.
The indication is blinking slowly.
- 3 Attach the white lens cap to the camcorder and point it to a subject (outdoors) or to the light source (indoors).
- 4 Press the button in the recording standby mode.
The indication will blink rapidly.
- 5 The indication stops blinking to indicate that the new white balance is stored in the memory.
The memory is retained for approximately 1 hour even if the POWER switch is set to OFF or if the battery pack is removed.

When recording under fluorescent light

- Use the one push white balance function.
- Set the AUTO LOCK switch to AUTO LOCK.

(P-4)


Colour temperature (K)	Light source
10,000	Clear sky
8,000	
Blue	
7,000	Slightly overcast
6,000	Cloudy, rainy
5,000	Fluorescent lamp (daylight)
White	
4,000	Direct sunlight
3,500	Fluorescent lamp (daylight)
	1 hr. after/before sunrise/sunset
	Fluorescent lamp (off-white)
	Studio lamp
	Halogen lamp
3,200	
3,000	
Yellow	
2,500	Tungsten lamp
	30 min. after/before sunrise/sunset
Red	
2,000	Sunrise/sunset
	Candlelight



White Balance and Colour Temperature

(P-4)

The colour temperature indicates the relative reddishness or bluishness of light measured in Kelvin degrees (K). It increases as the light source gets bluish and decreases as the light source gets redder. It has no direct relation with brightness of the light. The camcorder automatically adjusts the white balance within the range shown in the diagram on the left.


What the indication means

- Slow blinking: white balance not adjusted
- Fast blinking: white balance being adjusted by the  button.
- Stops blinking: white balance adjusted



When the  indication does not stop blinking
The white balance cannot be adjusted and the  indication does not stop blinking.

- When the camcorder was pointed to an object that was not white.
- When white balance adjustment was attempted without the white lens cap.

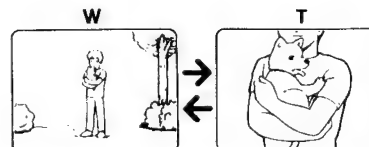
In these cases, point the camcorder to a bright light source or point the camcorder to a white object.

If the  indication still does not stop blinking
Set the AUTO LOCK switch to AUTO LOCK.

When the lighting condition changed

- Readjust the white balance by the  button during the recording standby mode. The  button does not function during recording.
- The white balance adjustment is affected by the setting of the aperture and shutter speed. When the aperture or shutter speed is adjusted manually, and the camcorder was moved from indoors to outdoors or vice versa, the white balance setting may not be correct. In this case, set the AUTO LOCK switch to AUTO LOCK again and readjust the white balance automatically.

(Q-1)



Zooming

(Q-1)

The size of the subject in the screen can be changed. Use "zoom-in" for dramatic close-ups and "zoom-out" for panoramic long shots. Also, use zooming during manual focusing. The camcorder's zoom button offers a variable speed zooming; pressing it firmly for high speed zooming and softly for relatively slow zooming.

Power Zooming — for Smooth and Constant Zooming

(Q-2)

Press the T side of the power zoom button for telephoto.
This gives a close up shot of an object far from the lens.

Press the W side of the power zoom button for wide.
This gives a broad view of the scene.

Manual Zooming — to Create a Dramatic Effect

(Q-3)

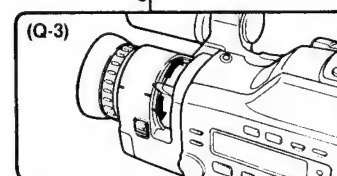
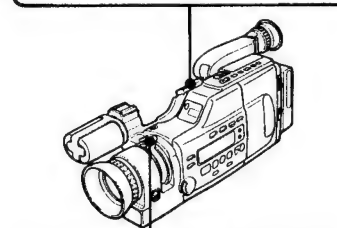
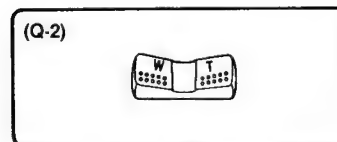
Turn the manual zoom lever upward for telephoto and downward for wide.

Focal length of this camcorder

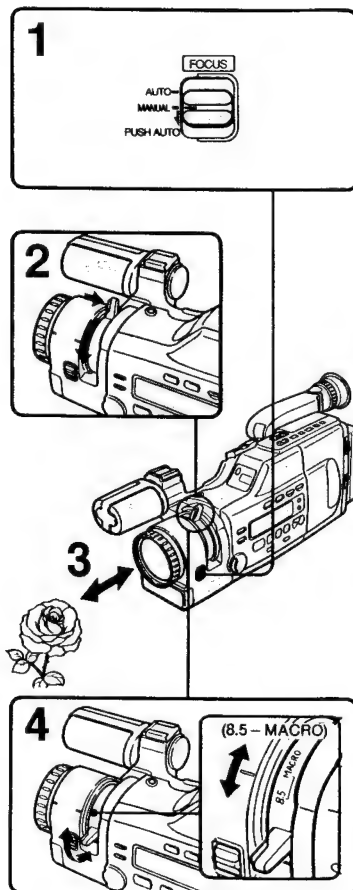
The focal length is 8.5 mm to 68 mm. This is approximately 46 mm to 368 mm converted to the focal length of a 35 mm camera.

Using the zoom button on the Commander

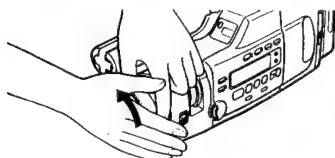
Variable speed zoom cannot be operated with the zoom button on the Commander.



(R-1)



(R-2)



Close-ups (Macro)

Tiny objects such as flowers, insects, and images in photographs, can literally fill the screen using the close-up function. It is also useful when recording a title.

(R-1)

- 1 Set the FOCUS switch to MANUAL. Check that the manual focus mark (MF) appears in the viewfinder.
- 2 While pressing the green macro button, turn the zoom lever to the left as far as it will go into the MACRO range.
- 3 Bring the camcorder as close as necessary to the subject to obtain the desired subject size. The subject can be as close to the lens surface as approximately 10 mm.
- 4 Turn the zoom lever within the MACRO range to focus sharply.

When you finish the close-up shooting
Turn the zoom lever out of the MACRO range.

Notes

- Auto focusing does not function in macro shooting.
- If the object is closer than 10 mm, it cannot not be brought in focus.

If the lens hood touches the object (R-2)

Remove the lens hood. Hold the focus ring and turn the hood by pressing it with your palm. Do the same when attaching or removing the filter or conversion lens (not supplied).

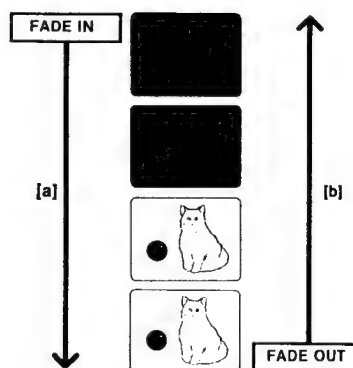
When you cannot come close to the object

You can record a close-up picture between 0.7 to 1.3 m away from the object.
Turn the zoom lever to the telephoto end position.

Recommended accessory

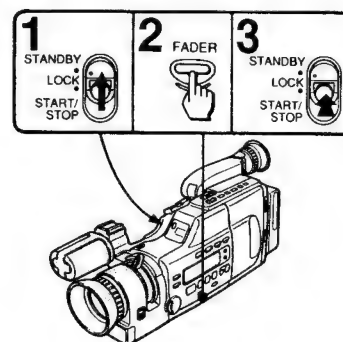
When shooting in macro, the depth of field is very shallow. Pay attention to focusing. To keep the object in focus, use a tripod.

(S-1)

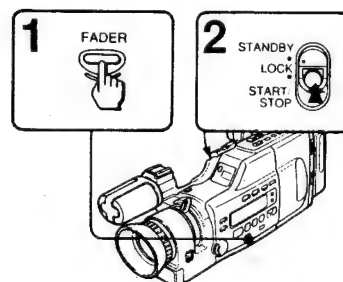


(S-2)

(S-3)



(S-4)



Fade-in and Fade-out

When fading-in, the picture will gradually appear from a black screen. The sound will gradually increase in accordance with the picture. (S-1)

When fading-out, the picture will gradually disappear into a black screen. The sound will gradually decrease in accordance with the picture. (S-2)

Use this function to give a professional effect to your recording.

To Fade-in

(S-3)

- 1 Slide the STANDBY switch up. The camcorder enters the recording standby mode.
- 2 Press the FADER button.
- 3 Press the START/STOP button. Fade-in is performed and recording starts.

To Fade-out

(S-4)

- 1 Press the FADER button while recording.
- 2 Press the START/STOP button to stop recording. Fade-out is performed and then recording stops.

When does the FADER function work

The FADER function works only when the camcorder is in the recording standby mode or recording mode.
It does not function in the stop mode.

To cancel the fade-in/fade-out function before it is performed

Press FADER before pressing START/STOP.

To use the fade-in/fade-out function repeatedly

Start from step 1 each time.

When the title, date or time is displayed

The title, date or time does not fade-in or fade-out.

Recording a Title

(T-1)



(T-1)

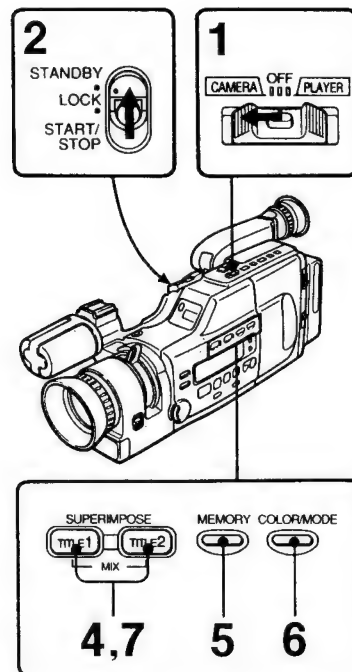
Original hand-lettered message or illustration can be superimposed over the picture. Two titles can be stored and 8 different colours can be used for the titles.

This function can be used during the following situations.

- (1) During camera recording.
- (2) During playback.
- (3) During camera recording, superimpose a title.
Then superimpose different titles during playback.
- (4) During editing, use the camcorder as a playback VTR. Titles can be superimposed over the playback picture (with or without a title superimposed) and then recorded together onto the recording VTR.

Before recording, playback, or editing, store the desired title in the camcorder.

(T-2)



Storing a Title

(T-2)

Before storing

- Prepare title cards.
Use a plain, white card and draw titles in dark colour and thick lines. Street signs and printed materials with high contrast can be used as a title.
- Install the lithium battery (page 26).
The titles cannot be kept in the memory unless the lithium battery is installed.

Operation

- 1 Hold down the green button and slide the POWER switch to CAMERA.
- 2 Slide the STANDBY switch up.
The camcorder enters the recording standby mode.
- 3 Point the camcorder to the title card and adjust the focus.
To focus on the title, use the macro function. (page 62).
- 4 Press the TITLE 1 or TITLE 2 button.
- 5 Press the MEMORY button.
The title is stored to the button pressed in step 4.
- 6 Press the COLOR/MODE button to select the colour of the title.
Each time you press the button, the indication changes as follows.

WHT (white) → BLUE → GRN (green) → CYAN
↑
BLK (black) ← YEL (yellow) ← VIO (violet) ← RED
- 7 Press the TITLE 1 or TITLE 2 button, whichever was pressed in step 4, to clear the title from the viewfinder.
The title is stored to that button until you store another one over it.

To check the title

Press the TITLE 1 or TITLE 2 button, whichever was pressed in step 4, in the standby mode. To clear the title from the viewfinder, press the same button again.

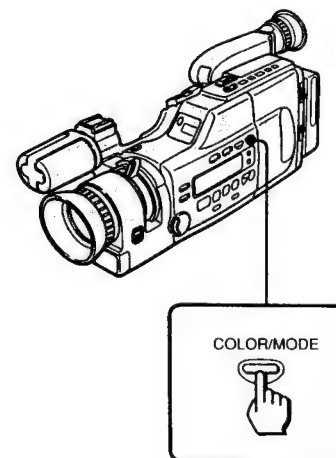
To store a new title

Repeat steps 1 to 7. A new title is stored to the TITLE 1 or TITLE 2 button and the previous title will be deleted from that button.

When storing a title in the memory

When a cassette is installed, the camcorder will return to the power off mode after 5 minutes. Take out the cassette if more than 5 minutes will be needed to store the title.

(T-3)



Function of the COLOR/MODE Button

(T-3)

The COLOR/MODE button works in two ways. When a title is displayed in the viewfinder, the colour of the title can be changed. When the title is not displayed, the title display mode can be changed.

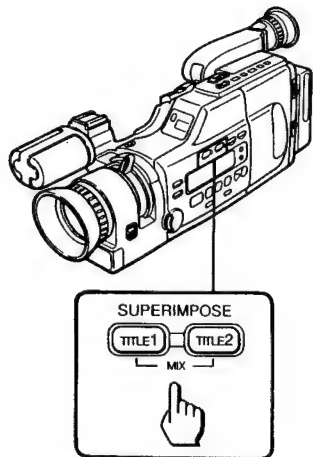
To select the colour

- 1 Press the TITLE 1 or TITLE 2 button to display the title.
- 2 Press COLOR/MODE.
Each time the button is pressed, the colour indication changes as follows.
WHT (white) → BLUE → GRN (green) → CYAN
↑
BLK (black) ← YEL (yellow) ← VIO (violet) ← RED

To select the display mode

- 1 If the title is displayed, press TITLE 1 or TITLE 2 button to clear the title.
- 2 Press COLOR/MODE.
Each time the button is pressed, the mode indication changes as follows.
↑: Scroll up the title.
↓: Scroll down the title.
↔: Reverse the title.
↔↑: Reverse the title and scroll it up.
↔↓: Reverse the title and scroll it down.

(T-4)



Superimposing One Title

(T-4)

- 1 During playback or recording, press the TITLE 1 or TITLE 2 button at the point from which you want to use the title. The title is displayed. During recording the title will be recorded on the tape. During playback the title will not be recorded on the tape.

- 2 Press the same button pressed in step 1 at the point you wish to clear the title.

When recording the title at the beginning
We recommend the following method:

- 1 Set the camcorder in the standby mode.
- 2 Display the title by pressing the TITLE 1 or TITLE 2 button.
- 3 Release the standby mode.
- 4 Clear the title by pressing the same button as step 2.

When recording a title onto the playback picture

The title can be superimposed on the playback picture but cannot be recorded with this camcorder alone. Make connections for editing and record the picture with title superimposed on another VTR. (See page 101).

About the colour indication

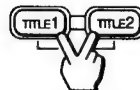
- The colour indication in the viewfinder is not recorded.
- Even after the title is displayed, the colour can be changed by pressing the COLOR/MODE button.

When displaying the title in the playback mode

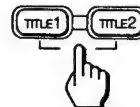
The title is cleared if you press ◀ or ▶, and appears again when normal playback resumes.

(T-5)

1



2



Layering One Title over the Other

The title stored in the TITLE 1 button and the TITLE 2 button can be displayed at the same time with one title layered on the other.

Example: When a blue heart is stored in the TITLE 1 button and a white title "LOVE" is stored in the TITLE 2 button.

To display TITLE 1 in the background and
TITLE 2 in the foreground
(T-5)

- 1 During playback or recording, hold down the TITLE 1 button and press the TITLE 2 button.
- 2 Press the TITLE 1 or TITLE 2 button at the point you wish to clear the title.

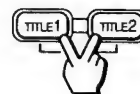
To display TITLE 2 in the background and
TITLE 1 in the foreground
(T-6)

- 1 During playback or recording, hold down the TITLE 2 button and press the TITLE 1 button.
In this case, TITLE 2 "LOVE" is hidden behind TITLE 1 and is not seen. Before using this function, check whether the title stored in the memory is appropriate for this application.

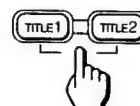
- 2 Press the TITLE 1 or TITLE 2 button at the point you wish to clear the title.

(T-6)

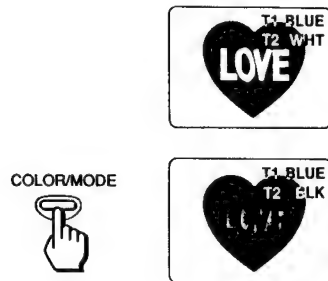
1



2



(T-7)



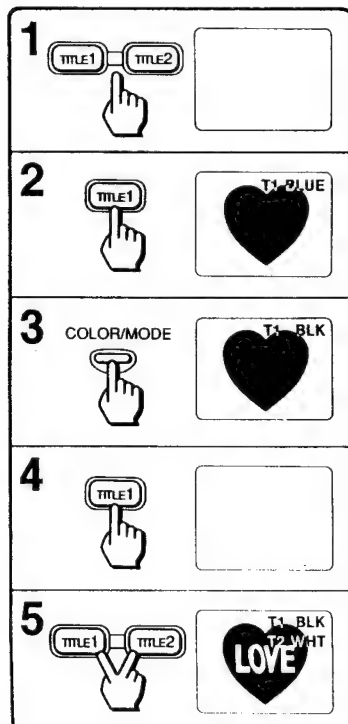
To Change the Colour of the Title after Layering One Title over the Other

Example: When a blue heart is stored in the TITLE 1 button and a white title "LOVE" is stored in the TITLE 2 button.

To change the colour of the title in the foreground (T-7)

Press the COLOR/MODE button.
Each press of COLOR/MODE will change the colour of "LOVE".

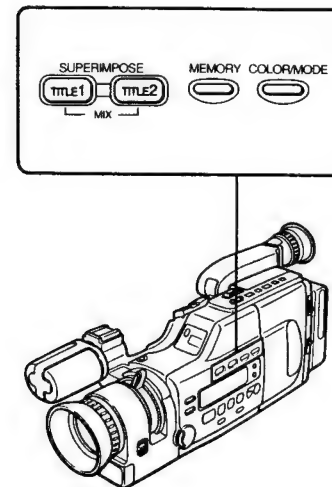
(T-8)



To change the colour of the title in the background (T-8)

- 1** Press the TITLE 1 or TITLE 2 button to clear the title.
- 2** Press the TITLE 1 button.
TITLE 1, blue heart, is displayed.
- 3** Press the COLOR/MODE button to change the colour of TITLE 1.
The colour of TITLE 1, blue heart, changes.
- 4** Press the TITLE 1 button.
TITLE 1, black heart, is cleared from the picture frame.
- 5** Hold down the TITLE 1 button and press the TITLE 2 button.

(T-9)



Various Title Display Modes

Follow the steps below to enjoy the various title display modes.

(T-9)

Step 1

During camera recording or playback, press the COLOR/MODE button to select the title display modes. Refer to the following page for the available modes.

Step 2

Call up the title.

To display one title:

Press the TITLE 1 or TITLE 2 button.

To layer one title over the other:

Call up the title referring to page 69.

Step 3

Clear the title.

When one title is displayed:

Press the same button pressed in step 2.

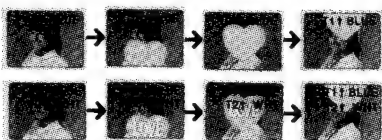
When one title is layered over the other:

Press either the TITLE 1 or TITLE 2 button.

(T-10)



(T-11)



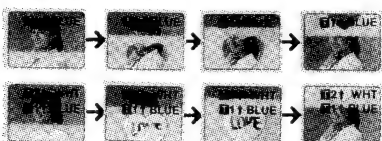
(T-12)



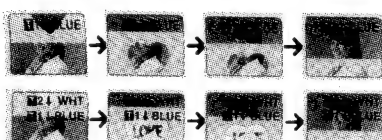
(T-13)



(T-14)



(T-15)



Title display modes

Each time you press the COLOR/MODE button in step 1 (page 71), the title display modes changes in the following order.

• Normal title display (T-10)

• Scrolling up the title (T-11)

Step 1: The ↑ indication is displayed.

Step 2: The title is scrolled upwards to the center and stops.

Step 3: The title is scrolled up and out of the picture frame.

• Scrolling down the title (T-12)

Step 1: The ↓ indication is displayed.

Step 2: The title is scrolled downwards to the center and stops.

Step 3: The title is scrolled down and out of the picture frame.

• Reversing the title with the picture (T-13)

Step 1: The ⇄ indication is displayed.

Step 2: The reversed title is displayed.

Step 3: The title is cleared from the picture frame.

• Scrolling up the reversed title (T-14)

Step 1: The ⇄↑ indication is displayed.

Step 2: The reversed title is scrolled upwards to the center.

Step 3: The reversed title is scrolled up and out of the picture frame.

• Scrolling down the reversed title (T-15)

Step 1: The ⇄↓ indication is displayed.

Step 2: The reversed title is scrolled downwards to the center.

Step 3: The reversed title is scrolled down and out of the picture frame.

To scroll up or down through the picture frame

Press the TITLE 1 or TITLE 2 button twice successively. The title does not stop on the center, but is scrolled up or down and out of the picture frame.

When displaying one title over the other

• TITLE 1 and TITLE 2 cannot be called up in the different title display mode at the same time.

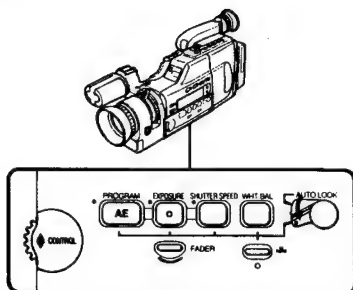
For example, calling up TITLE 1 in the reverse mode and TITLE 2 in the scroll up mode at the same is not possible.

• When scrolling the two titles layered, press the second title button before the first title starts to scroll.

Note on scrolling

You can scroll the title only when the camcorder is in the recording standby, recording, or normal playback mode. Only normal title display mode (no indication) and reverse title display mode (⇄) can be performed during modes other than the three above. (Refer to "Various Playback Modes" on page 45.) If you select the scroll mode first, and then set the camcorder to the modes other than the three above, the scroll mode will be canceled automatically.

(U-1)



Viewfinder	Display window
(U-2) 	
(U-3) 	
(U-4) Example 425 ▶ F8	
(U-5) Example ▶ 425 F8	
(U-6) No indication	No indication

Recording a Picture Using Programmed AE and Manual Modes

(U-1)

A variety of camera recording modes can be selected for this camcorder, from the full automatic mode to the programmed AE mode in which camera recording modes most suited for the subject and/or the condition is adjusted automatically. In addition, the manual mode enables independent setting of the exposure value and shutter speeds. Setting of a single parameter or a combination of two parameters at one time is possible.

Camera Recording Modes Available

With the AUTO LOCK switch set down, each press of the PROGRAM AE button changes the camera recording mode as follows.

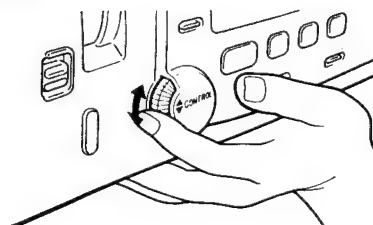
- Portrait (U-2)
- ↓ Sports (U-3)
- ↓ Aperture priority (U-4)
- ↓ Shutter priority (U-5)
- ↓ Manual (U-6)

The selected parameters are displayed.

During programmed AE and manual modes

Focus and white balance can be adjusted independently from the programmed AE mode or the manual mode. Manual adjustment of focus and white balance is recommended.

(U-7)



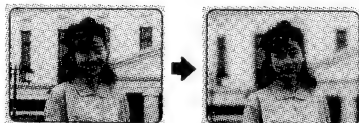
How to use the CONTROL dial (U-7)

Move the dial slowly using the tip of your index finger. If the dial is released immediately after holding it to the maximum position, the sound of the dial returning to the normal position may be recorded.

When recording in the aperture priority mode or the manual mode

Do not point the lens at the sun or other light sources when the aperture value is set to F1.4.

(V-1)



Portrait Mode

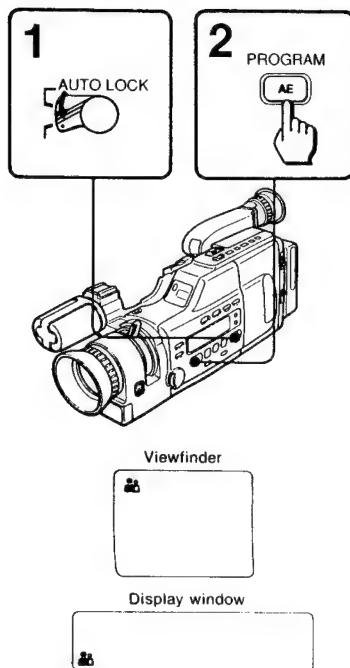
(V-1)

In the portrait mode, the subject is in focus and the background is out of focus. The aperture (opening of the iris) and the shutter speed is automatically adjusted to maintain the appropriate exposure according to the size and brightness of the subject. The portrait mode is most effective when used outdoors.

Portrait Mode Applications

- To shoot a subject with not much movement, such as a portrait of a person or a close up of a flower.
- To zoom in a subject with the telephoto mode.
- To shoot a subject with an obstruction in the foreground.

(V-2)



Operation

(V-2)

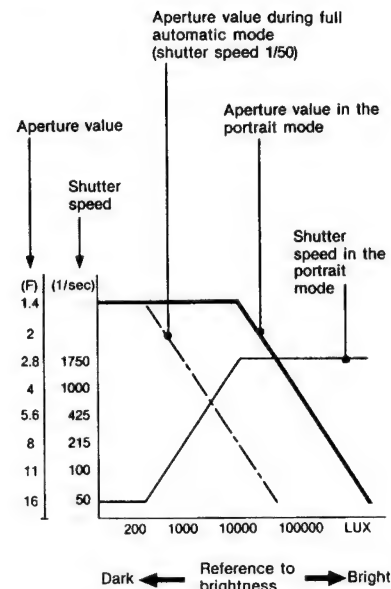
- 1 Set the AUTO LOCK switch down.
- 2 Press the PROGRAM AE button until the AE indication is displayed in the viewfinder and the display window. The camcorder enters the portrait mode.

To return to the full automatic mode
Set the AUTO LOCK switch to AUTO LOCK.

To enter other programmed AE modes from the portrait mode
Press the PROGRAM AE button to display the desired programmed AE mode.

When recording in the portrait mode
Focus and white balance can be adjusted manually. See page 55 (focus) and page 58 (white balance) for details.

(V-3)



Hint for effective camera work

Use of the portrait mode with the following method will gradually make the background out of focus while keeping the subject in focus.

- 1 Enter the portrait mode referring to page 76.
- 2 Set the AUTO LOCK switch to AUTO LOCK and start recording.
- 3 Set the AUTO LOCK switch down. The camcorder will enter the portrait mode and make the background out of focus.

The theory of the portrait mode (V-3)

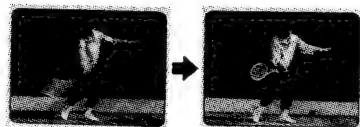
When shooting outdoors under bright sunlight in the full automatic mode, the aperture tends to close and both the subject and the background comes into focus (deep depth of field). This is a result of excessive light. In order to bring the subject in focus and keep the background out of focus (shallow depth of field), the aperture should be opened. In the portrait mode, the aperture is controlled to open by automatically selecting the shutter speed (between 1/50 to 1/1750 that matches the shooting situation) to maintain the appropriate exposure.

When recording under fluorescent, sodium, or mercury lamps

- The brightness of the recorded picture may flicker.
- The colour of the recorded picture may vary.

Sports Mode

(W-1)



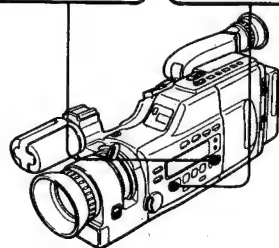
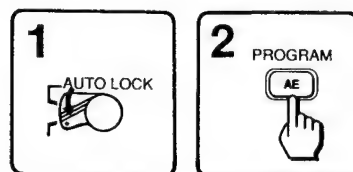
(W-1)

By recording in the sports mode, a subject moving at high speed can be recorded and the picture can be observed more clearly with less picture shaking in the still or slow mode compared to the full automatic mode. The shutter speed and the aperture is automatically adjusted to maintain the appropriate exposure according to the speed of the subject.

Sports Mode Applications

- To shoot outdoor sports scenes, such as football, tennis, and golf.
- To shoot the scenery from inside a moving automobile.

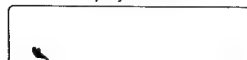
(W-2)



Viewfinder



Display window



Operation

(W-2)

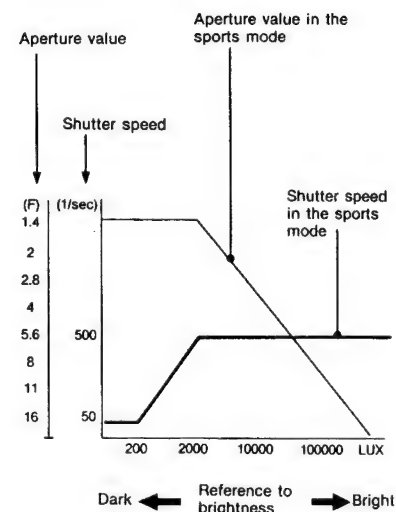
- 1 Set the AUTO LOCK switch down.
- 2 Press the PROGRAM AE button until the AE indication is displayed in the viewfinder and the display window.
The camcorder enters the sports mode.

To return to the full automatic mode
Set the AUTO LOCK switch to AUTO LOCK.

To enter other programmed AE modes from the sports mode
Press the PROGRAM AE button to display the desired programmed AE mode.

When recording in the sports mode
Focus and white balance can be adjusted manually. See page 55 (focus) and page 58 (white balance) for details.

(W-3)



Hint for effective camera work

When shooting athletic matches from a distance, such as a football game, we tend to zoom from the wide to the telephoto position to catch the once-only events. Even under these circumstances, by using the sports mode, a sharp picture without camera wobble can be obtained when played back later in the slow or still mode.

The theory of the sports mode (W-3)

When the shutter speed is shifted to a faster speed, subjects moving at high speed, such as a tennis racket or golf club, can be recorded and then played back clearly with less picture shaking compared to the full automatic mode. With this camcorder, the shutter speed can also be set independently from the aperture. However, the picture may become dark when the lighting condition is insufficient. In the sports mode, the fastest shutter speed that matches the shooting situation (between 1/50 and 1/500) is selected to maintain the appropriate exposure.

Note

The sports mode is effective under sufficient lighting, such as under sunlight. When used under extremely dark conditions, the shutter speed may not be shifted to high speeds.

When recording under fluorescent, sodium, or mercury lamps

- The brightness of the recorded picture may flicker.
- The colour of the recorded picture may vary.

Aperture Priority Mode

(X-1)



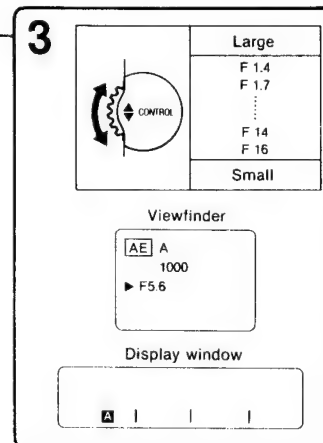
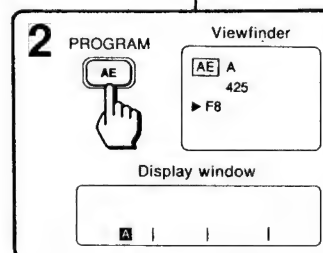
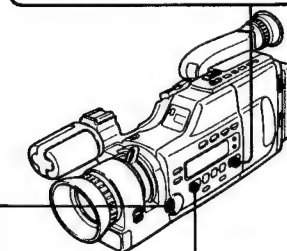
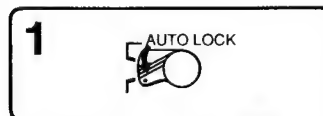
(X-1)

The aperture priority mode enables to select the aperture which determines the depth of field. 15 aperture values, from F 1.4 to F16, can be selected. The shutter speed is automatically set (between 1/50 to 1/1750) in combination with the aperture value to maintain the appropriate exposure.

Aperture Priority Application

To shoot the picture with different depths of field.

(X-2)



Operation

(X-2)

- 1 Set the AUTO LOCK switch down.
- 2 Press the PROGRAM AE button until the **[AE] A** indication is displayed in the viewfinder and **A** in the display window. The camcorder enters the aperture priority mode.
- 3 Move the CONTROL dial to set to the desired aperture value.
The selectable aperture values are:
F1.4, F1.7, F2, F2.4, F2.8, F3.4, F4, F4.8, F5.6, F6.8, F8, F9.6, F11, F14, F16

The shutter speed indication corresponds to the change of the aperture value.

To return to the full automatic mode
Set the AUTO LOCK switch to AUTO LOCK.

To enter other programmed AE modes from the aperture priority mode
Press the PROGRAM AE button to display the desired programmed AE mode.

When recording in the aperture priority mode
Focus and white balance can be adjusted manually.

See page 55 (focus) and page 58 (white balance) for details.

Hints for effective camera work

• Understanding the depth of field

The depth of field is the area in which the objects are in focus. A shallow depth of field shows the subject in focus and the background out of focus. The greatest depth of field shows everything in focus.

• Depth of field and aperture value

A large aperture provides a shallow depth of field and a small aperture provides a deep depth of field.

• Depth of field and object-to-camera distance

When the object-to-camera distance is near, the depth of field will be shallow. When the object-to-camera distance is far, the depth of field will be great.

• Depth of field and zooming

The depth of field will be shallow in the telephoto position. The depth of field will be great in the wide position.

• Summary

	A shallow depth-of-field	A deep depth-of-field
Aperture	Towards open	Towards closed
Object-to-camera distance	Near	Far
Zoom	Telephoto	Wide

When the ► indication in the viewfinder is blinking
The lighting condition is insufficient or excessive for the aperture priority mode. In this case, move the CONTROL dial and readjust the aperture.

• Insufficient light (when the picture inside the viewfinder is dark)

Change the aperture towards F1.4.

• Excessive light (when the picture inside the viewfinder is too bright)

Change the aperture towards F16.

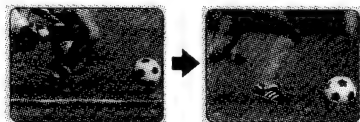
Although we recommend camera recording without the ► indication blinking, camera recording can be performed even when the ► indication is blinking. Check the picture in the viewfinder before recording.

When recording under fluorescent, sodium, or mercury lamps

- The brightness of the recorded picture may flicker.
- The colour of the recorded picture may vary.

Shutter Priority Mode

(Y-1)



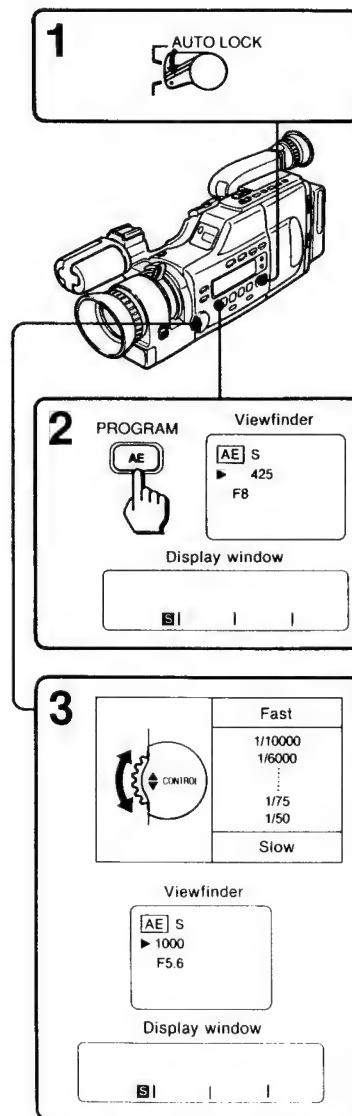
(Y-1)

The shutter priority mode enables selection of the shutter speed. 16 shutter speeds can be selected from 1/50 (normal speed) to 1/10000. When a fast shutter speed is selected, subjects moving at high speed can be recorded and the picture can be observed more clearly with less picture shaking in the still or slow modes compared to slower shutter speeds. The aperture value is automatically set (between F1.4 to F16) in combination with the shutter speed to maintain the appropriate exposure.

Shutter Priority Applications

- To shoot a golf swing or a tennis match with the tennis ball captured clearly.
- When you wish playback certain scenes with high speed movements in a clear, sharp picture.

(Y-2)



Operation

(Y-2)

- 1 Set the AUTO LOCK switch down.
- 2 Press the PROGRAM AE button until the **[AE] S** indication is displayed in the viewfinder and **S** in the display window. The camcorder enters the shutter priority mode.
- 3 Move the CONTROL dial to set to the desired shutter speed.
The selectable shutter speeds are:
1/50, 1/75, 1/100, 1/120, 1/150, 1/215, 1/300, 1/425, 1/600, 1/1000, 1/1250, 1/1750, 1/2500, 1/3500, 1/6000, 1/10000

The aperture value indication corresponds to the change of the shutter speed.

To return to the full automatic mode
Set the AUTO LOCK switch to AUTO LOCK.

To enter other programmed AE modes from the shutter priority mode
Press the PROGRAM AE button to display the desired programmed AE mode.

When recording in the shutter priority mode
Focus and white balance can be adjusted manually. See page 55 (focus) and page 58 (white balance) for details.

Hints for effective camera work
Refer to the chart below for the appropriate shutter speed for the object. Check the brightness of the picture in the viewfinder.

When to use	Recommended speed
<ul style="list-style-type: none"> On clear days, recording golf or tennis scenes. (To view the hit ball clearly in the slow or still mode, select shutter speeds between 1/1000 to 1/4000) Recording the skiers. 	1/10000 to 1/600
<ul style="list-style-type: none"> On overcast days, recording a moving merry-go-round or a roller coaster. Recording outdoors stably from inside a moving automobile. General athletic scenes, marathon, etc. 	1/425 to 1/150
<ul style="list-style-type: none"> Used in place of the ND2 filter to reduce the exposure to approximately 1/2. Recording indoors for stable recording. 	1/120
<ul style="list-style-type: none"> Recording under bright sunlight. To avoid out-of-focus pictures while recording with small aperture. 	1/100 to 1/75

When the ► indication in the viewfinder is blinking
The lighting condition is insufficient or excessive for the shutter priority mode. In this case, move the CONTROL dial and readjust the shutter speed.

Although we recommend camera recording without the ► indication blinking, camera recording can be performed even if the ► indication is blinking. In this case, check the picture in the viewfinder before recording.

When is shutter speed 1/50 indicated?
1/50 indication is displayed only when the shutter speed is set to 1/50 using the CONTROL dial. Even though the shutter speed is set to 1/50 during the full automatic mode, the indication will not be displayed.

When the shutter speed is set 1/215 or faster
Try to shoot under sunlight outdoors, and with the video light indoors.

When shooting a very bright object
A vertical band (smear) may appear on the screen if shot at high speeds.

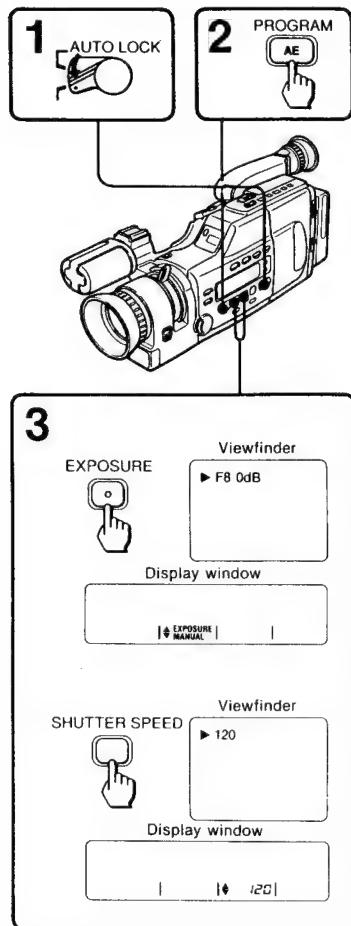
When the shutter speed is changed when shooting a TV screen
The brightness of the recorded picture may vary.

When recording under fluorescent, sodium, or mercury lamps

- The brightness of the recorded picture may flicker.
- The colour of the recorded picture may vary.

Manual Mode

(Z-1)



In the manual mode, independent setting of the exposure (aperture value/gain level) and shutter speeds can be performed. Setting of a single parameter or a combination of two parameters at one time is possible.

Setting One Parameter

(Z-1)

- 1 Set the AUTO LOCK switch down.
- 2 Press the PROGRAM AE button until nothing is indicated in the upper left hand corner of the viewfinder. The camcorder enters the manual mode.

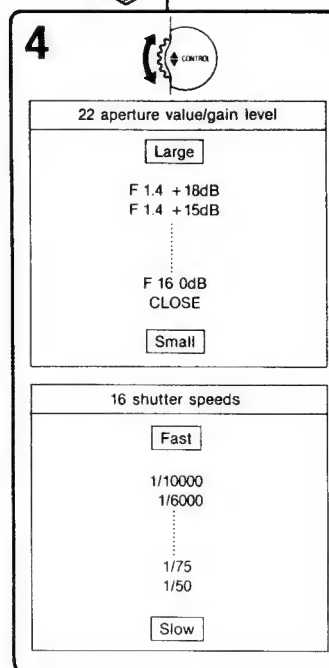
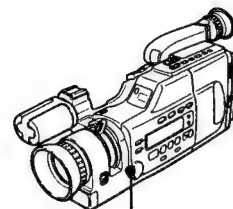
At this point, the shutter speed is set to 1/50, the exposure (aperture/gain) are automatically adjusted to the shooting condition.

- 3 Press the button of the parameter to be set.

To set the exposure (aperture/gain) value
Press the EXPOSURE button. The exposure (aperture/gain) is set to the value at the instant the button was pressed.

To set the shutter speed
The first press of the SHUTTER SPEED button sets the shutter speed to 1/120 speed and the second press sets it to 1/1000. To set to other speeds, go to step 4.

Continued on the next page



- 4 Select the desired setting by the CONTROL dial.

The indication in the viewfinder changes as shown in the illustration and below.

Selectable aperture value/gain level
F1.4/+18dB, F1.4/+15dB, F1.4/+12dB, F1.4/+9dB, F1.4/+6dB, F1.4/+3dB, F1.4/0dB, F1.7/0dB, F2/0dB, F2.4/0dB, F2.8/0dB, F3.4/0dB, F4/0dB, F4.8/0dB, F5.6/0dB, F6.8/0dB, F8/0dB, F9.6/0dB, F11/0dB, F14/0dB, F16/0dB, CLOSE

Selectable shutter speeds
1/50, 1/75, 1/100, 1/120, 1/150, 1/215, 1/300, 1/425, 1/600, 1/1000, 1/1250, 1/1750, 1/2500, 1/3500, 1/6000, 1/10000

Note on the exposure indication
When recording indoors, the exposure indication may be F2 +3dB. This indicates that the gain level has increased while the aperture value is not F1.4 (open). This adjustment can only be made in the automatic mode. You cannot make such an adjustment in the manual mode.

(Z-2)

EXPOSURE



SHUTTER SPEED



To return to the full automatic mode
Set the AUTO LOCK switch to AUTO LOCK.

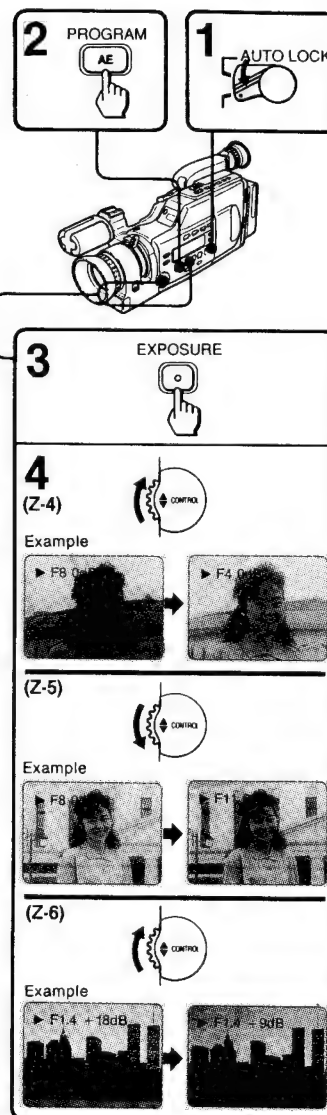
To enter other programmed AE modes from
the manual mode
Press the PROGRAM AE button to display the
desired programmed AE mode.

When recording in the manual mode
Focus and white balance can be adjusted
manually. See page 55 (focus) and page 58
(white balance) for details

The buttons pressed and the indication in the
viewfinder
(Z-2)

- When the EXPOSURE button is pressed
The camcorder indicates the aperture
value/gain level that was last detected when
the camcorder was controlling the exposure
automatically. At the same moment, the
exposure is locked to the indicated level.
- When the SHUTTER SPEED button is
pressed
The first press of this button sets the
camcorder to the 1/120 shutter speed. The
second press sets the camcorder to the 1/1000
shutter speed. For a quick access to the
desired shutter speed, first press the button
and set to the shutter speed whichever is
closer to the desired speed and then turn the
CONTROL dial.

(Z-3)



Exposure Control Applications

(Z-3)

Adjust the exposure when there is an extreme
difference in the brightness between the
subject and the background.

This camcorder automatically raises the gain
level to capture the subject clearly when the
shooting condition is dark. Due to this
function, the recorded picture may seem
brighter than the actual shooting condition. In
these cases, set the gain level to reproduce
the actual atmosphere.

1 Set the AUTO LOCK switch down.

2 Press the PROGRAM AE button until
nothing is indicated in the upper left hand
corner of the viewfinder.
The camcorder enters the manual mode.

At this point, the shutter speed is set to
1/50, the aperture and gain are
automatically adjusted to the shooting
condition.

3 Press the EXPOSURE button.

4 Move the CONTROL dial to set the
aperture/gain to the appropriate value.

Illumination from behind the subject and
opposite the camera (Back light)

(Z-4)

Move the CONTROL dial up to decrease
the aperture value.

Illumination too strong

(Z-5)

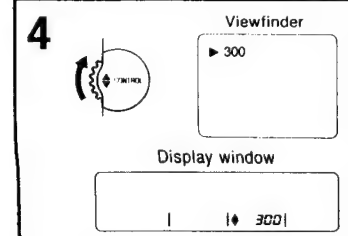
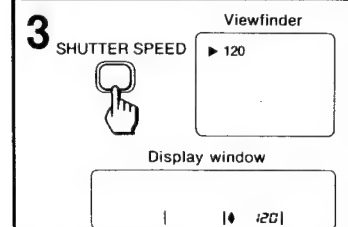
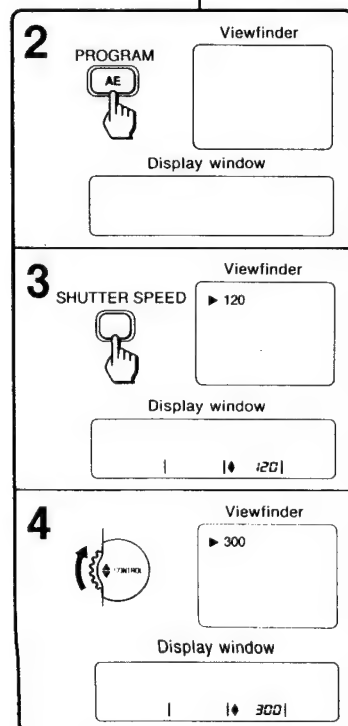
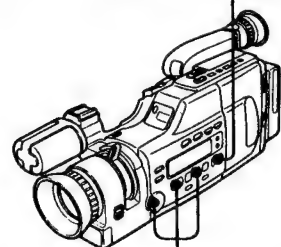
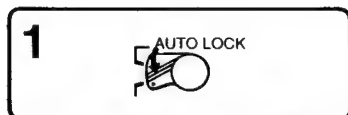
Move the CONTROL dial down to increase
the aperture value.

Shooting the picture in the dark effectively
(Z-6)

Move the CONTROL dial down to lower the
gain level.

When the gain level is too high
The picture may become distorted.

(Z-7)



Setting Multiple Parameters

(Z-7)

Example: To set the shutter speed to 1/250, aperture value to F4 0dB.

- 1 Set the AUTO LOCK switch down.
- 2 Press the PROGRAM AE button until nothing is indicated in the upper left hand corner of the viewfinder. The camcorder enters the manual mode.

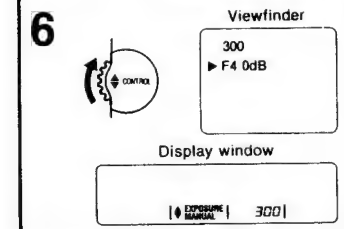
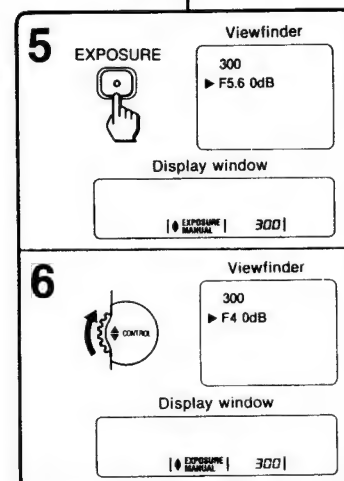
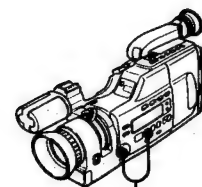
At this point, the shutter speed is set to 1/50, the aperture and gain are automatically adjusted to the shooting condition.

- 3 Press the SHUTTER SPEED button.

- 4 Move the CONTROL dial and set the shutter speed to 300.

To set the shutter speed only, the setting is completed here.

Continued on the next page



- 5 Press the EXPOSURE button.



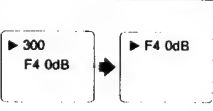


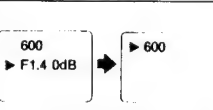
- 6 Move the CONTROL dial and set the aperture value to F4 0dB.

Camera recording will be performed under this setting even when the shooting condition changes.

To return to the full automatic mode
Set the AUTO LOCK switch to AUTO LOCK.

Which parameter to be set first
Setting can be performed from either parameter.
Press the button of the desired parameter.
The indication when the button is pressed is the same as those explained in page 90.

(Z-8)

Parameter	Indications in the Viewfinder (setting examples)
SHUTTER SPEED 	
	
EXPOSURE 	
	

To change the setting

- Parameter with the ► indication:
Move the CONTROL dial to change the setting.

- Parameter without the ► indication:

- 1 Press the button of the desired parameter to move the ► indication to that parameter.
- 2 Then move the CONTROL dial to change the setting.

To quit the setting

(Z-8)

Parameter with the ► indication:

Press the button of that parameter to erase the indication from the viewfinder.

Parameter without the ► indication:

- 1 Press the button of the parameter to be erased to move the ► indication to that parameter.
- 2 Then press the same button to erase that parameter from the viewfinder.

When the parameter is erased

The adjustment of that parameter will be as follows.

- Shutter speed: Locked to 1/50.
- Aperture value/gain level: Automatic adjustment

(Z-9)

	Exposure		Shutter speed
	Aperture value	Gain level	
Selectable steps	15 steps	7 steps	16 steps
Variation of exposure (in terms of EV steps)	0.5 EV steps	0.5 EV steps	0.5 EV steps
Towards bright (+ EV) ↑ Towards dark (– EV)	F1.4 ↑ F16	+18 dB ↑ 0 dB	1/50 ↑ 1/10000

Advanced Application of the Manual Mode

The manual adjustment function offers an advanced video camera recording technique by controlling the exposure with the balance of shutter speed, aperture value and gain level.

Understanding the relation between aperture value, shutter speed, and gain

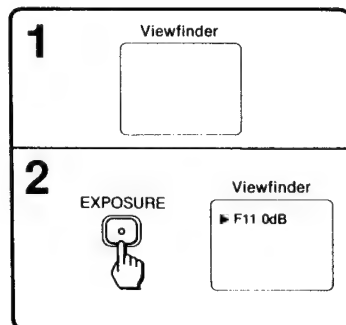
Exposure is measured in the units of Exposure value (EV). In this camcorder, the total EV can be varied or kept at a constant level by controlling the balance of the parameters.

Refer to the chart on the left (Z-9) for an overview of the relation between aperture value, gain level, and shutter speed of this camcorder.

The relation between exposure and the aperture, gain, and shutter speed can be concluded as:

EV (Exposure value)	=	Exposure (aperture/gain) control	+	Shutter speed control
------------------------	---	--	---	--------------------------

(Z-10)



Example: To change the setting without changing the exposure

(Z-10)

- 1 Set the camcorder to the manual mode referring to page 92.

- 2 Press the EXPOSURE button.

The setting at this point becomes the basic reference to perform the following setting.

Let's set the exposure at this point at 0 EV.

$$0 \text{ EV} = \text{Exposure (aperture/gain) control} + \text{Shutter speed control}$$

In order to maintain the same exposure, the total exposure should be kept to 0 EV in any case.

- 3 Refer to the diagram (Z-11) to choose the setting.

The diagram shows the relation between aperture, gain, and shutter speed.

Setting in step 2 (on page 97)

Aperture value: F11

Gain level: 0dB

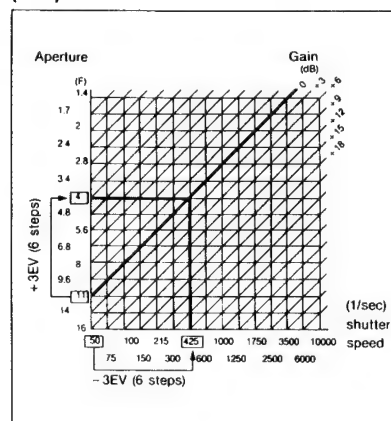
Shutter speed: 1/50

Vertical axis: Aperture value in 0.5EV/step

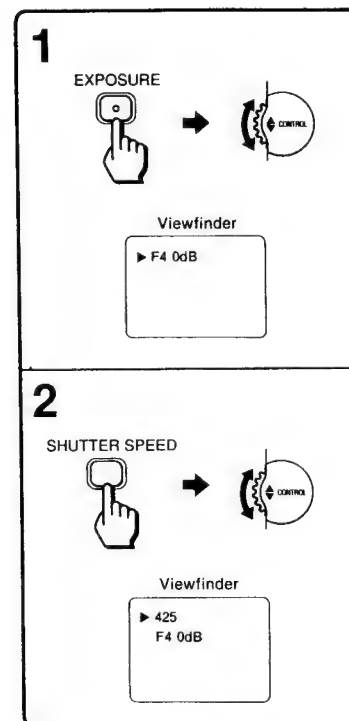
Diagonal axis: Gain level in 0.5 EV/step

Horizontal axis: Shutter speed in 0.5EV/step

(Z-11)



(Z-12)



To set the aperture to F4 without changing the exposure

(Z-12)

- 1 Press the EXPOSURE button and move the CONTROL dial to set the aperture to F4. When shifting the aperture from F11 to F4, the exposure becomes 6 steps brighter. This means that in terms of EV, the total exposure becomes +3 EV. In order to keep the total exposure to 0 EV, reduce the exposure by 3 EV with shutter speed.

- 2 How it works:

What is required here is to reduce the exposure by 3 EV, i.e. 6 steps, by shifting the shutter speed from 1/50 to 1/425.

Operation:

Press the SHUTTER SPEED button and move the CONTROL dial to set the shutter speed to 1/425.

Aperture control	Shutter speed control
F11 to F4	+1/50 to 1/425
+3 EV	-3 EV

0 EV =

Conclusion

To change the setting while having the same total exposure, change the exposure (aperture/gain) and shutter speed by the same numbers of steps.

Example 1: When you increase the exposure (aperture/gain) by 6 steps, increase the shutter speed by 6 steps.

Example 2: When you reduce the exposure (aperture/gain) by 3 steps, slow down the shutter speed by 3 steps.

Hint for effective camera work

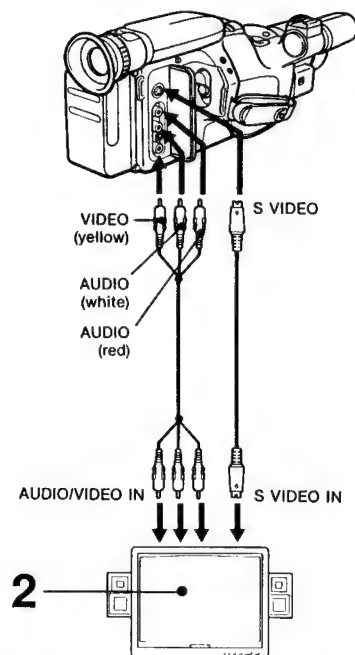
Gain can be used in terms of film sensitivity of a still camera.

Notes

- When shooting outdoors, the brightness of the object may change due to the change of weather.
- When the shooting condition changes, resetting of the parameters is recommended.

Custom Preset Function

(AA-1)



The camcorder can be preset to record the picture with the desired colour and hue. Adjust the camera, if necessary, after making several trial recordings.

Connections

(AA-1)

When using the custom preset function, adjust the picture by shooting a subject and checking the picture on a TV or a monitor.

- 1 Connect the camcorder and the TV or monitor referring to the illustration.
- 2 Set the TV/VIDEO selector on the TV or monitor to VIDEO.

Understanding the setting in the CUSTOM PRESET menu

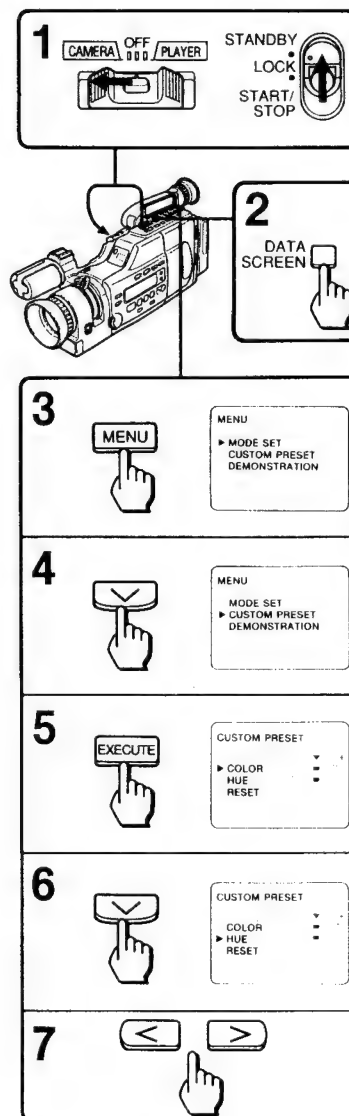
The custom preset function is effective only when the tape recorded in the CUSTOM PRESET mode is viewed on the TV or monitor that was connected to the camcorder at the time of the setting.

Therefore, the tape may not reproduce the picture in the expected colour or hue, when played back on a different TV or monitor.

Note

For details on the TV, refer to the operating instructions of the TV.

(AA-2)



Operation

(AA-2)

- 1 Set the **POWER** switch to **CAMERA** and slide the **STANDBY** switch up.
The camcorder enters the recording standby mode.
In order to adjust the picture precisely, adjust the focus and white balance manually.
- 2 Press **DATA SCREEN** to display the **CUSTOM PRESET** menu indication in the viewfinder on the TV or monitor screen.
- 3 Press **MENU**.
- 4 Press **↓** and move cursor to **CUSTOM PRESET**.
- 5 Press **EXECUTE**.
The **CUSTOM PRESET** menu is displayed.
- 6 Press **↓** and move cursor to the item to be adjusted.
Each press of **↓** moves the cursor to the item below. When the cursor is at **RESET**, press **↓** again to move the cursor to **COLOR**.
- 7 Press **<** or **>** to adjust the picture shot by the camera by monitoring it on the TV or monitor screen.
Three steps each from the standard position can be selected.

Parameter	Function	← - + →
COLOR	To adjust the colour intensity	Lighter Stronger
HUE	To adjust the hue	Purplish Greenish

Continued on the next page

8



- 8 Check the cursor is not set to RESET and press EXECUTE.
The CUSTOM PRESET menu is cleared and the new setting is stored in the memory.

To record in the setting made in the CUSTOM PRESET menu

- 1 Set the camcorder in the recording pause mode.
- 2 Call up the MODE SET menu referring to page 52.
- 3 Select "CUSTOM MODE ON".
- 4 Press EXECUTE.
- 5 Set the AUTO LOCK switch down.
The **CP** (custom preset mode) indication is displayed in the viewfinder.
- 6 Press START/STOP to start recording.

After recording

Reset the AUTO LOCK switch to AUTO LOCK.
The **CP** indication disappears, but the settings of the parameters remain.

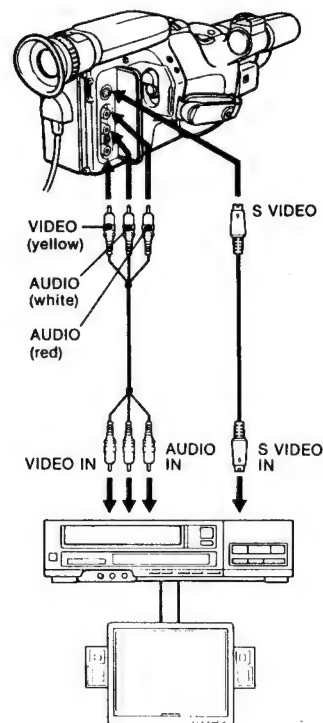
To return to the standard setting

Set cursor to RESET in step 6 of "Operation" (page 99) and press EXECUTE.
The CUSTOM PRESET menu is cleared. All of the parameters will be at the standard position the next time it is called up.

Note

The effect of the CUSTOM PRESET function may not be apparent depending upon the brightness, pattern, and colour of the subject.

(BB)



Editing onto Another VTR

You can create your own video programme by editing with any other 8 mm **B**, Betamax **B**, or VHS VHS format VTR.

Before You Begin

(BB)

- Make connections using the supplied A/V connecting cable for stereo equipment. For monaural equipment, connect only the white plug for audio and select "HIFI SOUND 1" in the menu. See "Selecting the Monitor Sound" on page 48.
- Use of the supplied AC power adaptor is recommended.
- Select "EDIT ON" in the MODE SET menu. See page 50.
- Press DATA SCREEN to clear the indication from the viewfinder. Otherwise, the indication will be recorded together with the picture on the recording VTR.
- Set the input selector of the VTR to LINE, if available.

Operation

- 1 Insert a tape for recording into the recording VTR.
- 2 Set the POWER switch on the camcorder to PLAYER and insert a source tape.
- 3 Playback the tape on the camcorder and locate the editing start point. Then set the camcorder to the playback pause mode.
- 4 Playback the tape on the recording VTR and locate the recording start point. Then set the VTR to the recording pause mode.
- 5 Release the pause mode on both VTRs.
Editing starts.

To stop editing momentarily
Press **II** on the recording VTR.

To edit more scenes
Repeat steps 3 to 5.

To stop editing
Press **□** on both VTR.

To record a title
Use the camcorder as a player. Playback the tape and call up the title in the desired mode. The played back picture will be recorded on the recording VTR with the title superimposed. For details on the title, refer to pages 64 to 73.

Note on edit function
When using the camcorder as the playback VTR, selecting the "EDIT ON" in the MODE SET menu activates the edit function. Picture deterioration resulting from editing can be kept to the minimum. However, avoid using the edited tape for multiple generations of editing. Deactivate the edit function when not editing.

(CC-1)



(CC-2)



Notes and Precautions

Notes on Moisture Condensation

If the camcorder is brought directly from a cold place to a warm place, moisture may condense inside the camcorder, on the surface or the tape, or on the lens. In this condition, the tape may stick to the head drum and be damaged or the unit may not operate correctly. To prevent possible damage under these circumstances, the camcorder is furnished with moisture sensors. However, take the following precautions.

If moisture condenses inside the unit (CC-1)

Moisture is present inside the camcorder when the **☀** and **☀** indications in the viewfinder blink. In this case, no function except for tape ejection will work.

Eject the tape, turn off the camcorder, and leave it with the cassette holder open for at least 1 hour.

The camcorder can be used again if the **☀** and **☀** indications do not appear when the power is turned on again. (**☀** indication appears only when a tape is inserted.)

If moisture condenses on the surface of the tape (CC-2)

If moisture is present on the surface of the tape when the tape is inserted and a tape transport button (**>**, **<**, etc.) is pressed, the **☀** indication blinks inside the viewfinder. In such case, no function except for tape ejection will work.

Eject the tape and let it sit for at least 1 hour.

The tape can be used again if the **☀** indication does not appear when the tape is inserted and a tape transport button is pressed.

If moisture condenses on the lens

No caution indications will appear, but the picture becomes dim.

Turn off the power and leave the camcorder unused for at least 1 hour.

(EE-3)



Notes on Video Head Cleaning

To ensure clear picture, clean the video heads periodically.

When playback pictures are noisy or hardly visible, the video heads may be contaminated.

(CC-3)

[a] Slight contamination

[b] Critical contamination

In such cases,

- 1 Clean the video heads with the Sony V8-25CLH cleaning cassette (not supplied), referring to its instructions.
- 2 After cleaning, check if the picture is clear by recording or playing back with an ordinary tape.
- 3 If the picture is still noisy, repeat cleaning. (Do not repeat cleaning more than 5 times.)

Caution

Do not use a commercially available wet-type cleaning cassette. It may damage the video heads.

Note

If the V8-25CLH cleaning cassette is not available in your area, consult your Sony service facility.

Precautions

On operation

- Operate the camcorder on 6.0 V (battery pack), 7.5 V (AC power adaptor), or 9.0 V (alkaline batteries).
- For DC or AC operation, use the accessories recommended in this manual.
- Should any solid object or liquid fall into the casing, unplug the camcorder and have it checked by qualified personnel before operating it any further.
- Do not hold the camcorder by the viewfinder or the microphone.
- Avoid rough handling or mechanical shock. Be particularly careful of the lens.
- Keep the lens cap on the lens when not using the camera.
- Do not wrap the camcorder and operate it because heat may build up internally.
- Keep the camcorder away from strong magnetic fields or mechanical vibration.
- **Do not let sand get into the camcorder**
When you use the camcorder on a sandy beach or dusty place, protect it from the sand or dust. Sand or dust may cause the unit to malfunction and sometimes the malfunction cannot be repaired.
- **Do not let the camcorder get wet**
Keep the camcorder from rain or sea water. It may cause malfunction and sometimes the malfunction cannot be repaired.

On care

- When the unit will not be used for a long time, disconnect the power source and remove the tape. Periodically turn on the power, operate the camera section and player section and play back a tape for about 3 minutes.
- Clean the lens with a soft brush to remove dust. If there are fingerprints on it, wipe them off with a soft cloth.
Clean the camcorder body with a dry, soft cloth, or a soft cloth lightly moistened with a mild detergent solution. Do not use any type of solvent which may damage the finish.

Note on copyright

Television programmes, films, video tapes, and other materials may be copyrighted. Unauthorized recording of such materials may be contrary to the provision of the copyright laws.

Using Your Camcorder Abroad

Each country has its own electricity system and TV colour system. Before using your camcorder abroad, check the following points.

Power Sources

You can use your camcorder in any country with the supplied AC power adaptor within 110 V to 240 V AC, 50/60Hz.

Difference in Colour Systems

You can view the playback picture in the viewfinder. However, if you want to view the playback picture on a TV, it must be an appropriate PAL system-based TV.

There is no compatibility among PAL, PAL-M and PAL-N systems.

PAL system countries

Australia, Austria, Belgium, China, Denmark, Finland, Germany (former West Germany), Great Britain, Holland, Hong Kong, Italy, Kuwait, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, Thailand, etc.

PAL-M system country

Brazil

PAL-N system countries

Argentina, Paraguay, Uruguay

NTSC system countries

Bahama Islands, Bolivia, Canada, Central America, Chile, Colombia, Ecuador, Jamaica, Japan, Korea, Mexico, Peru, Surinam, Taiwan, The Philippines, U.S.A., Venezuela, etc.

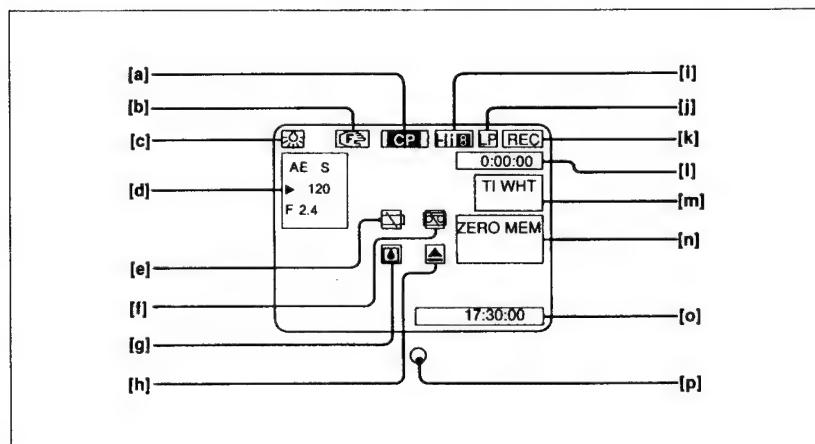
SECAM system countries

Bulgaria, France, Guiana, Hungary, Iran, Iraq, Monaco, Poland, Soviet Union, etc.

Indications in the Viewfinder and the Display Window

Indications in the Viewfinder

(DD-1)

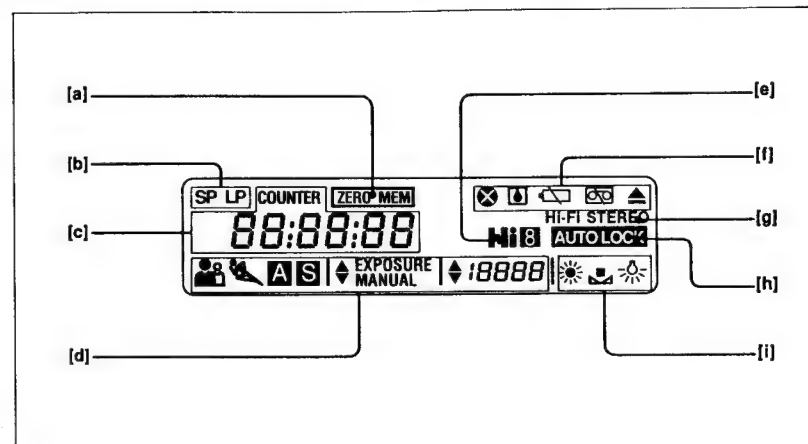


(DD-1)

- | | |
|---|---|
| [a] Custom preset mode indication | [i] Hi8 mode indication |
| [b] Manual focus mode indication | [j] Tape speed (SP/LP) indication |
| [c] White balance mode indication | [k] Tape operation mode, camera operation mode indication |
| [d] Fader, programmed AE, and manual mode indications | [l] Tape counter indication |
| [e] Battery indication | [m] Title number, colour, and mode indication |
| [f] Tape indication | [n] Zero memory mode indication |
| [g] Moisture condensation indication | [o] Date and time |
| [h] Head clog and caution indication | [p] Camera recording lamp |

Indications in the Display Window

(DD-2)



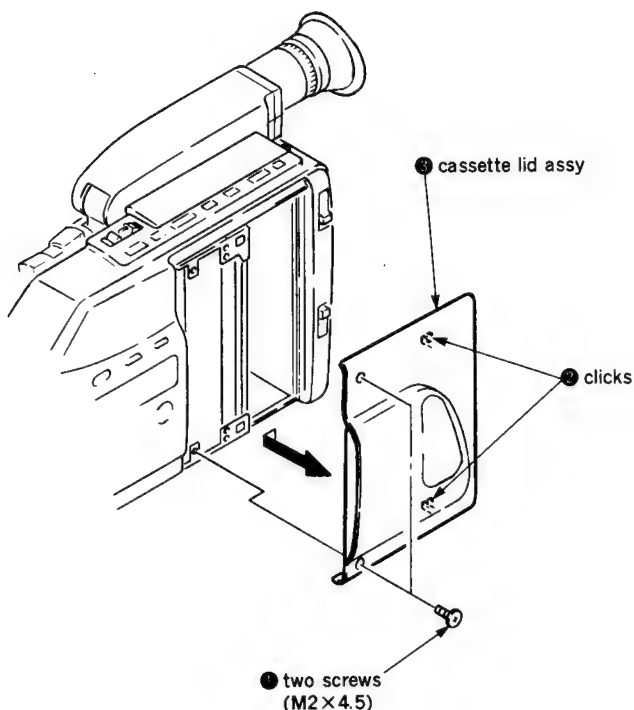
(DD-2)

- | | |
|---|--|
| [a] Zero memory mode indication | [e] Hi8 mode indication |
| [b] Tape speed indication | [f] Caution indications |
| [c] Time, date, and tape counter indication | [g] Hi-Fi stereo mode indication |
| [d] Programmed AE and manual mode indications | [h] Auto-lock indication
Appears in the automatic adjusting mode. |
| | [i] White balance mode indications |

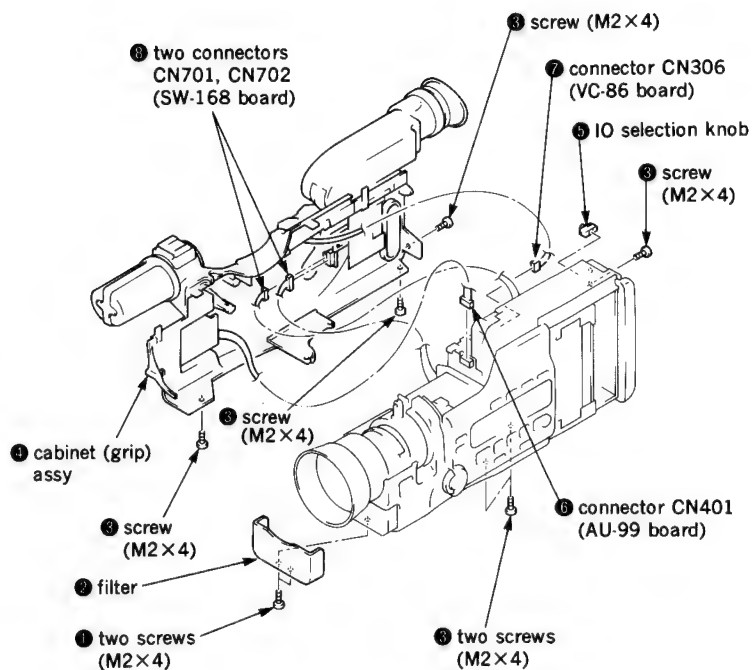
SECTION 2 DISASSEMBLY

2-1. REMOVAL OF CASSETTE LID ASSY

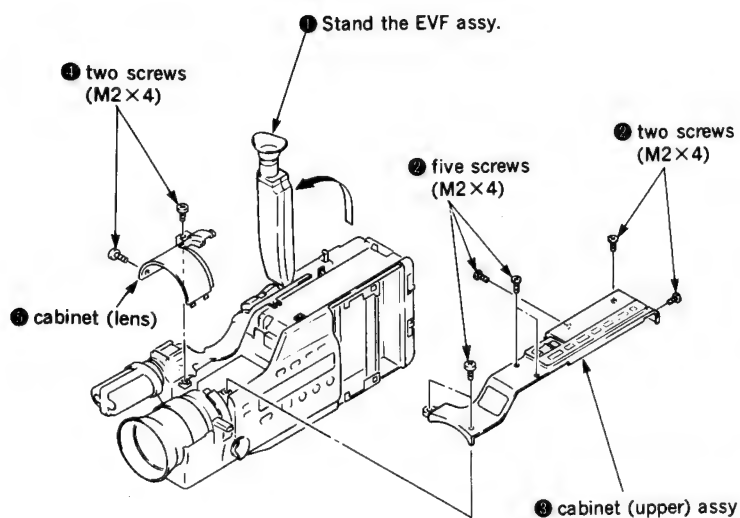
Note: When mounting, fit the clicks ② into holes completely, then clamp two screws ①.



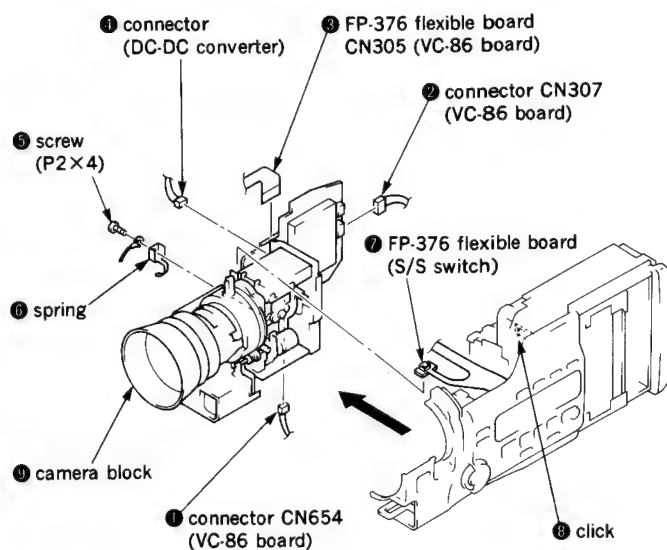
2-3. REMOVAL OF CABINET (GRIP) ASSY



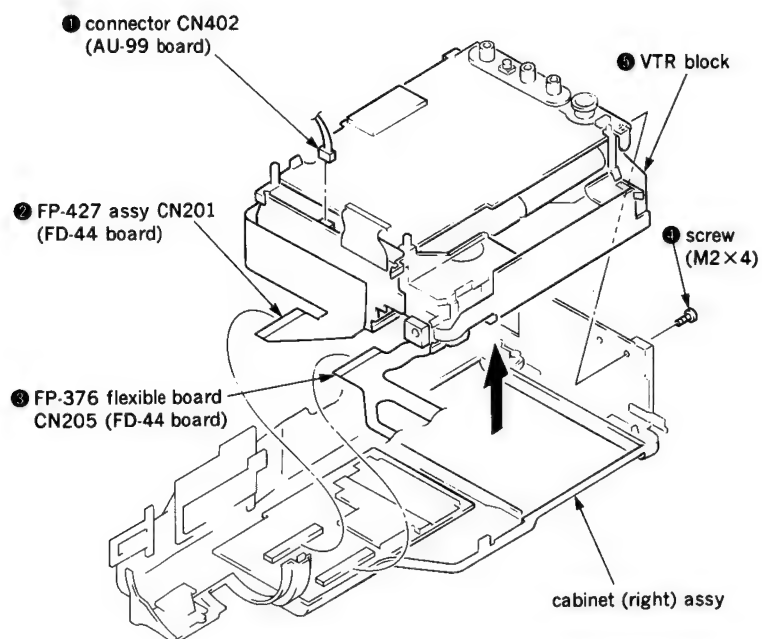
2-2. REMOVAL OF CABINET (UPPER, LENS) ASSY



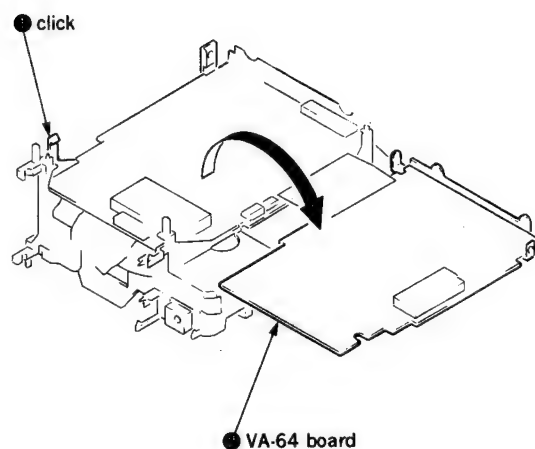
2-4. REMOVAL OF CAMERA BLOCK



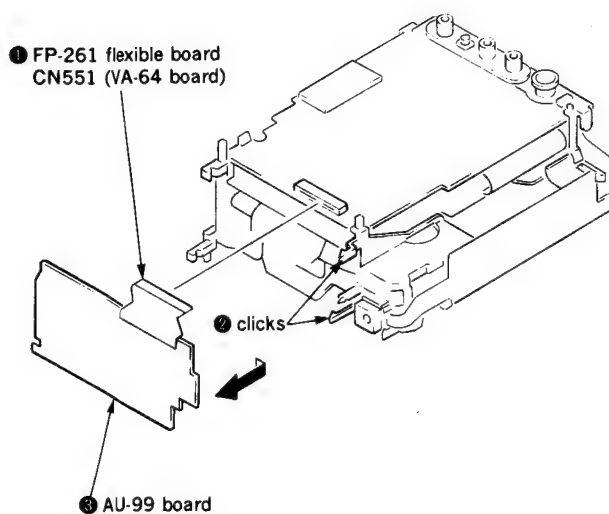
2-5. REMOVAL OF VTR BLOCK



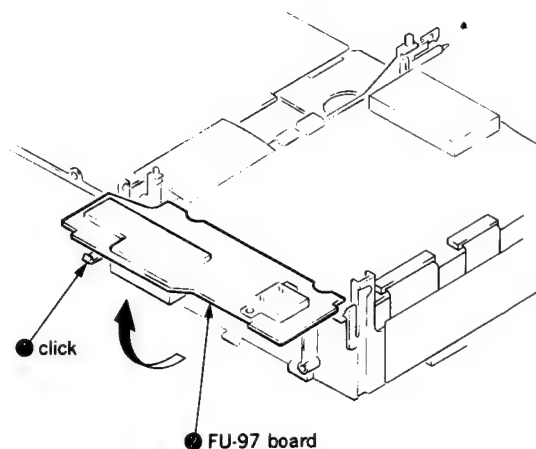
2-7. OPENING OF VA-64 BOARD



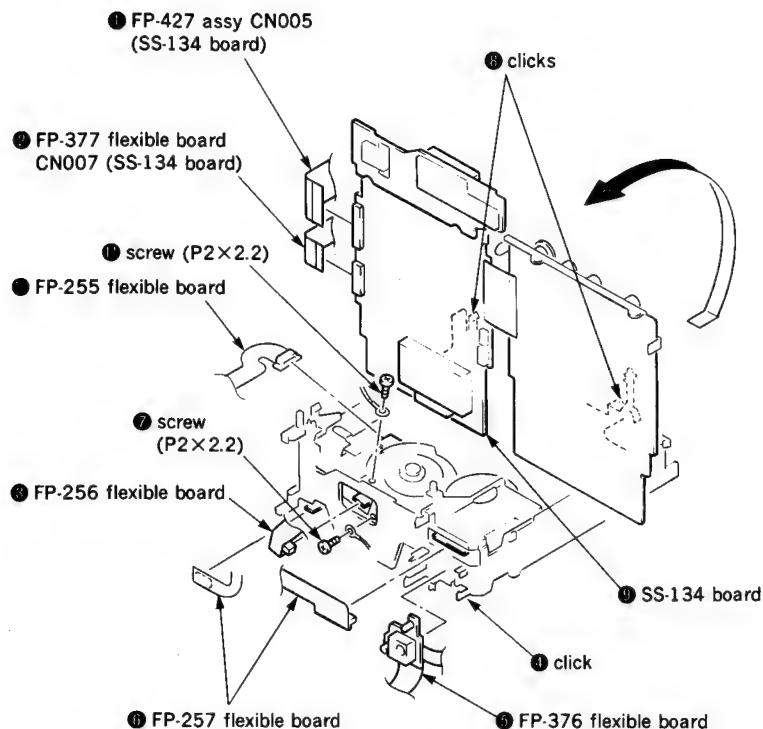
2-6. REMOVAL OF AU-99 BOARD



2-8. OPENING OF FU-97 BOARD

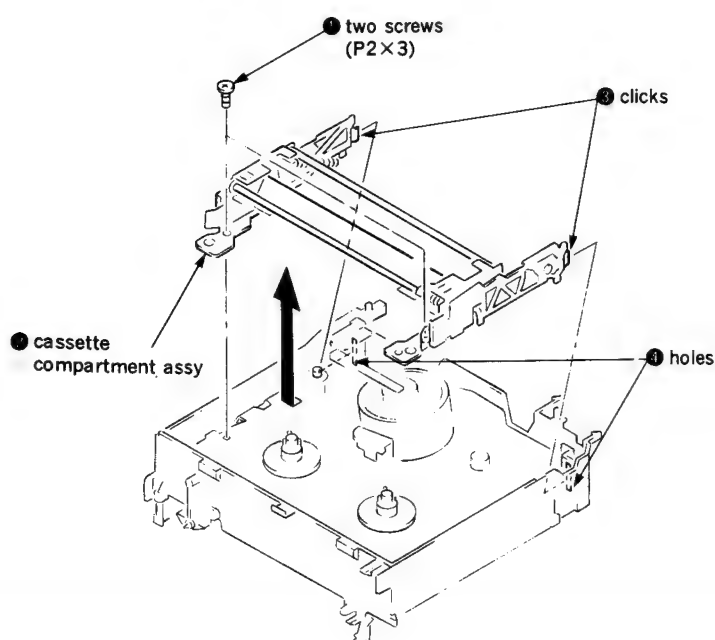


2-9. REMOVAL OF SS-134 BOARD

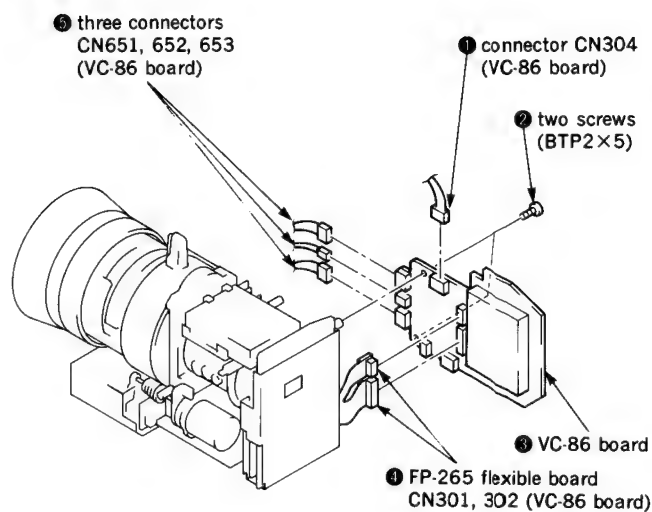


2-10. REMOVAL OF CASSETTE COMPARTMENT ASSY

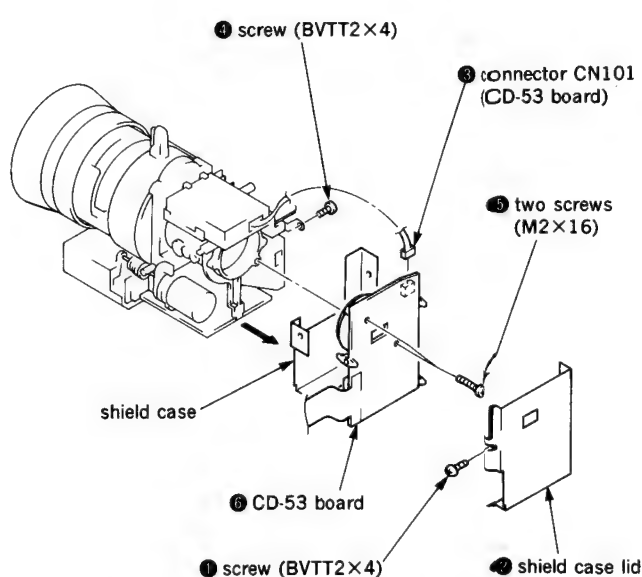
Note: When mounting, fit the clicks ⑧ into completely, then clamp two screws ①.



2-11. REMOVAL OF VC-86 BOARD

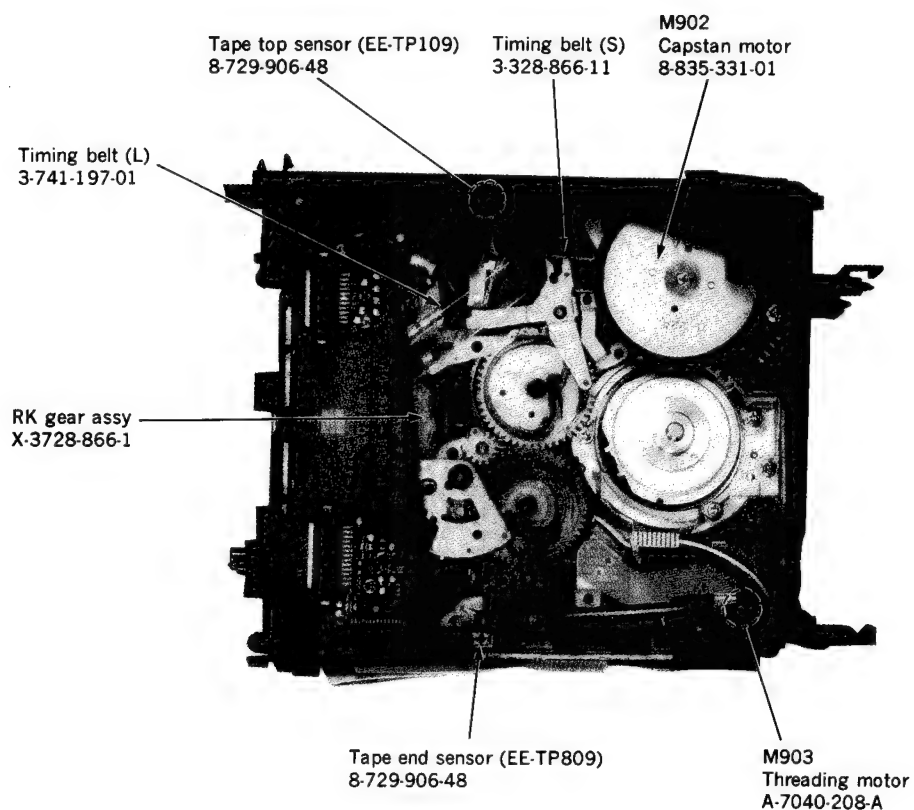
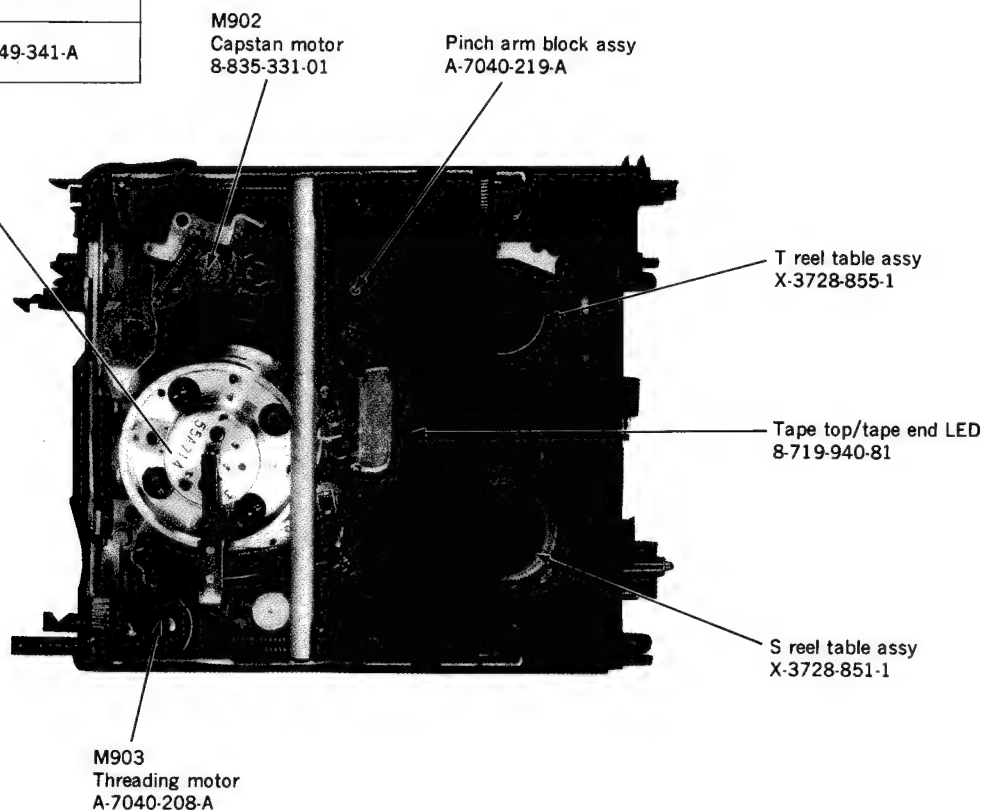


2-12. REMOVAL OF CD-53 BOARD



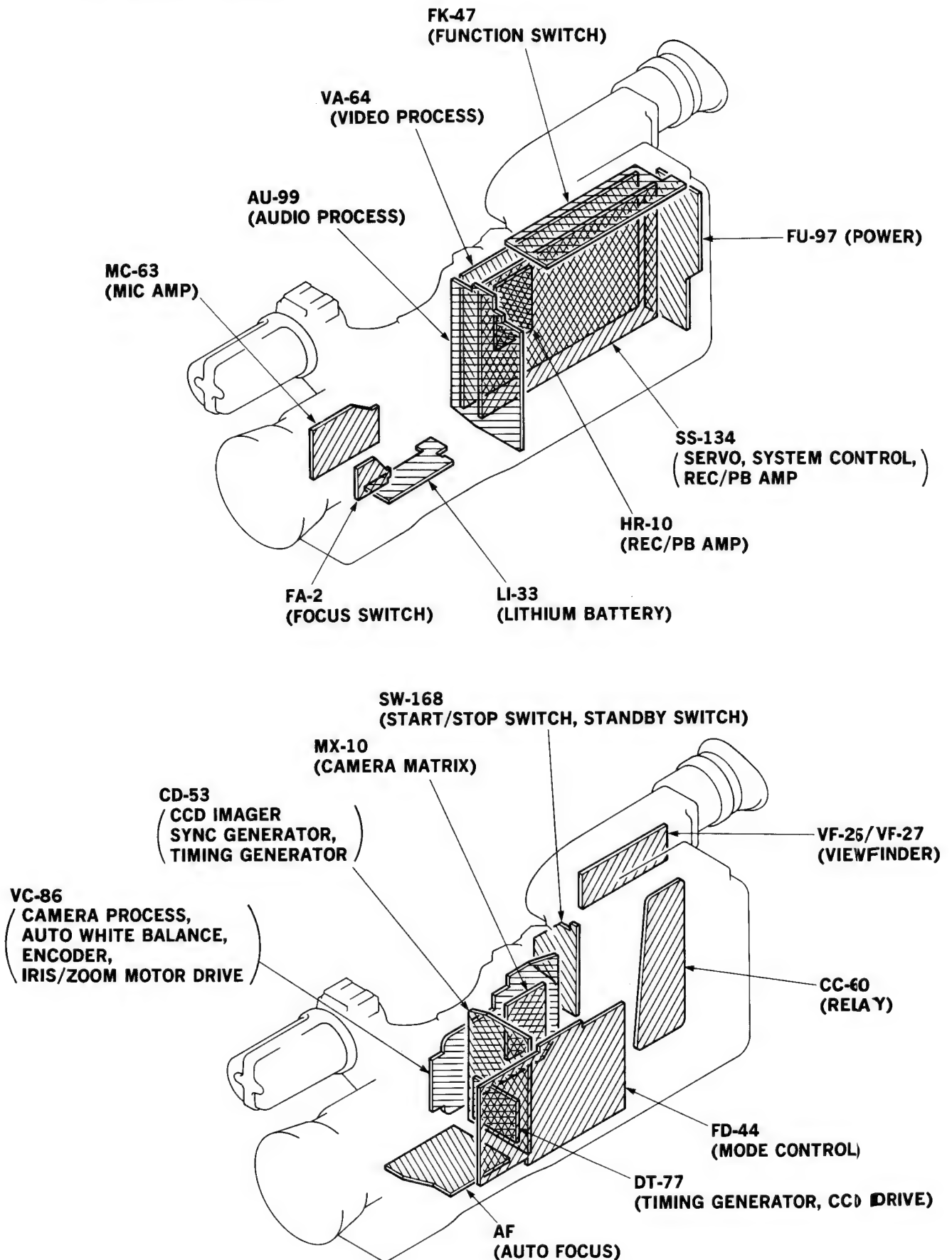
2-13. INTERNAL VIEWS

Drum assy (DGU-62A-R)	A-7048-403-A
Upper drum assy (DGR-62-R)	A-7049-341-A

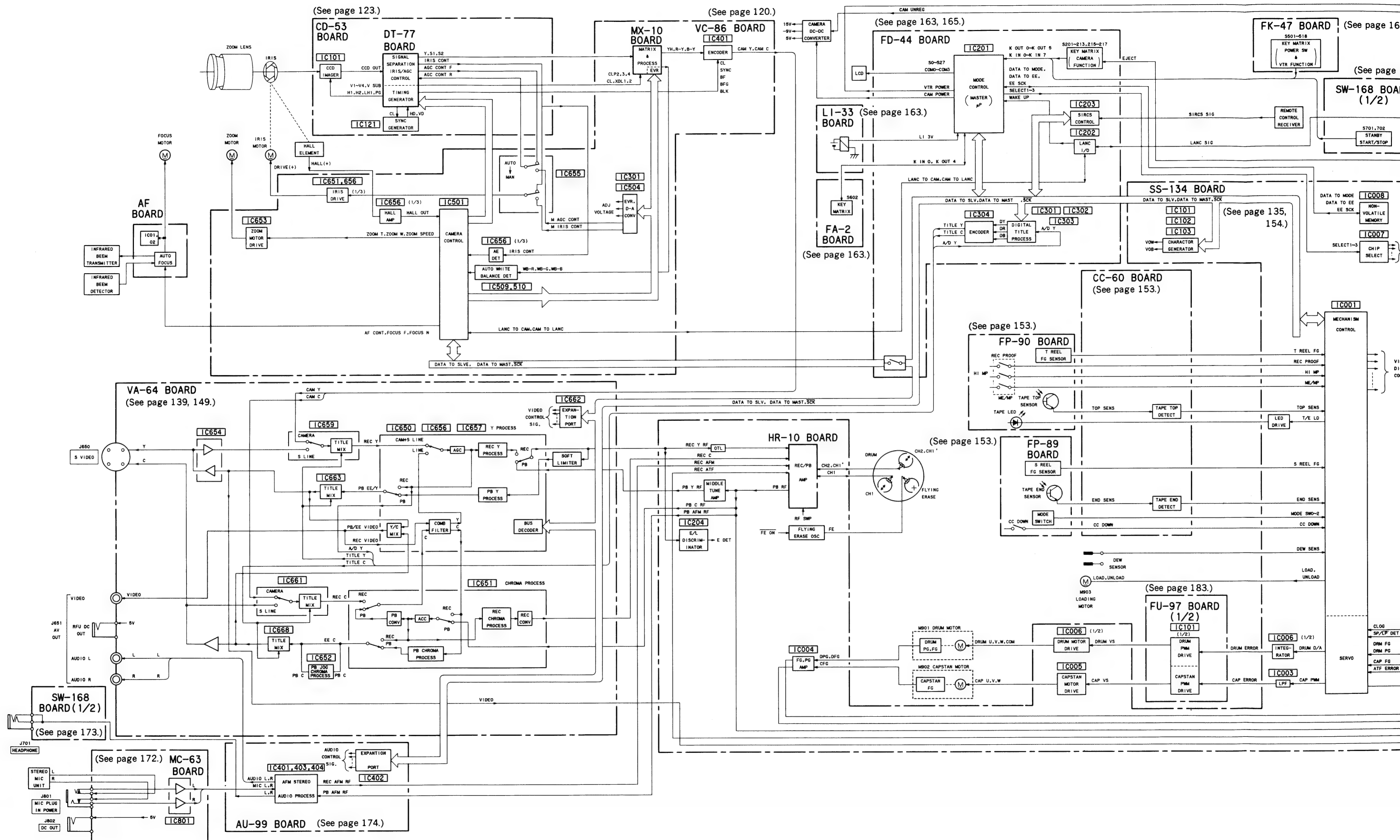


SECTION 3 DIAGRAMS

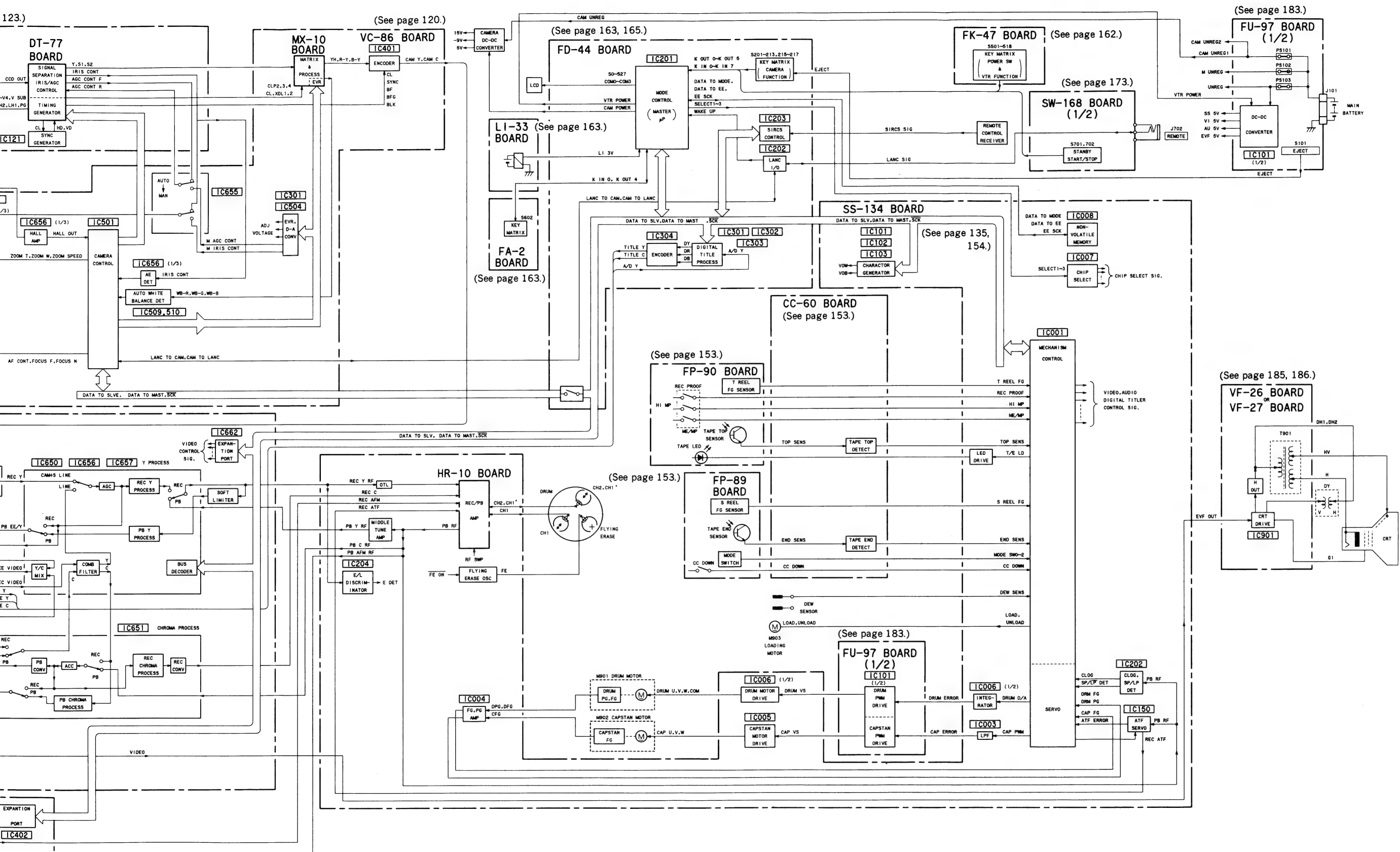
3-1. CIRCUIT BOARDS LOCATION



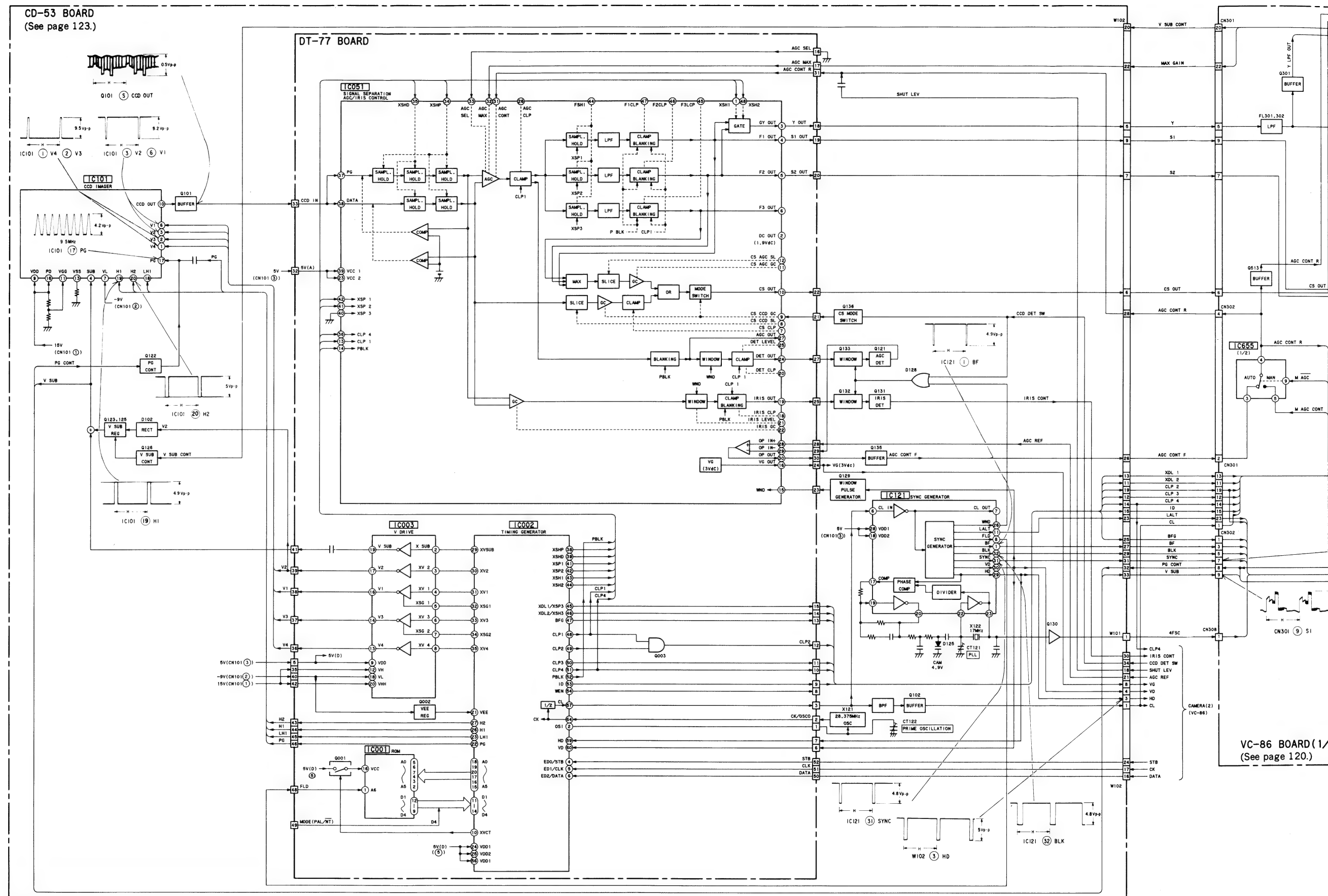
3-2. OVERALL BLOCK DIAGRAM

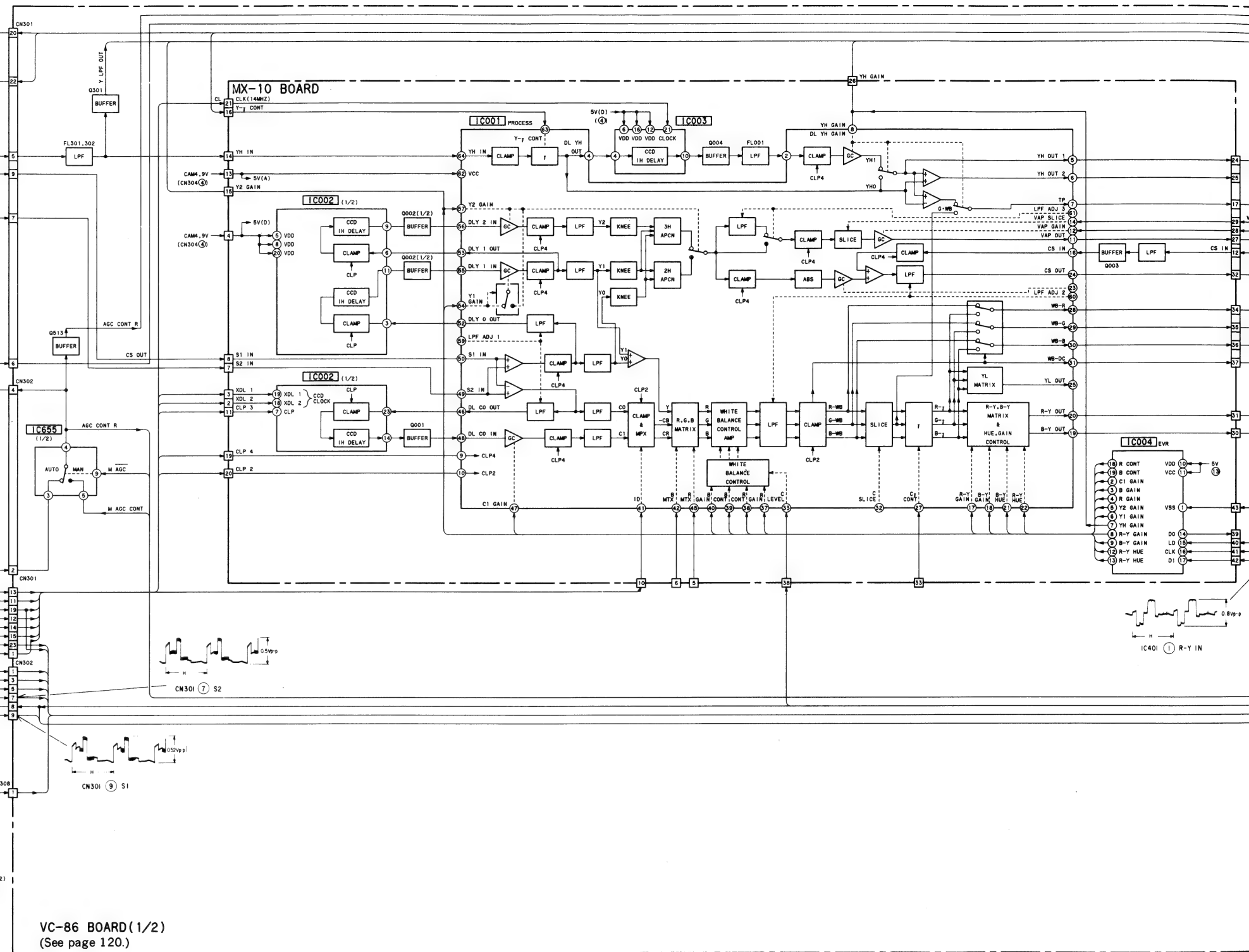
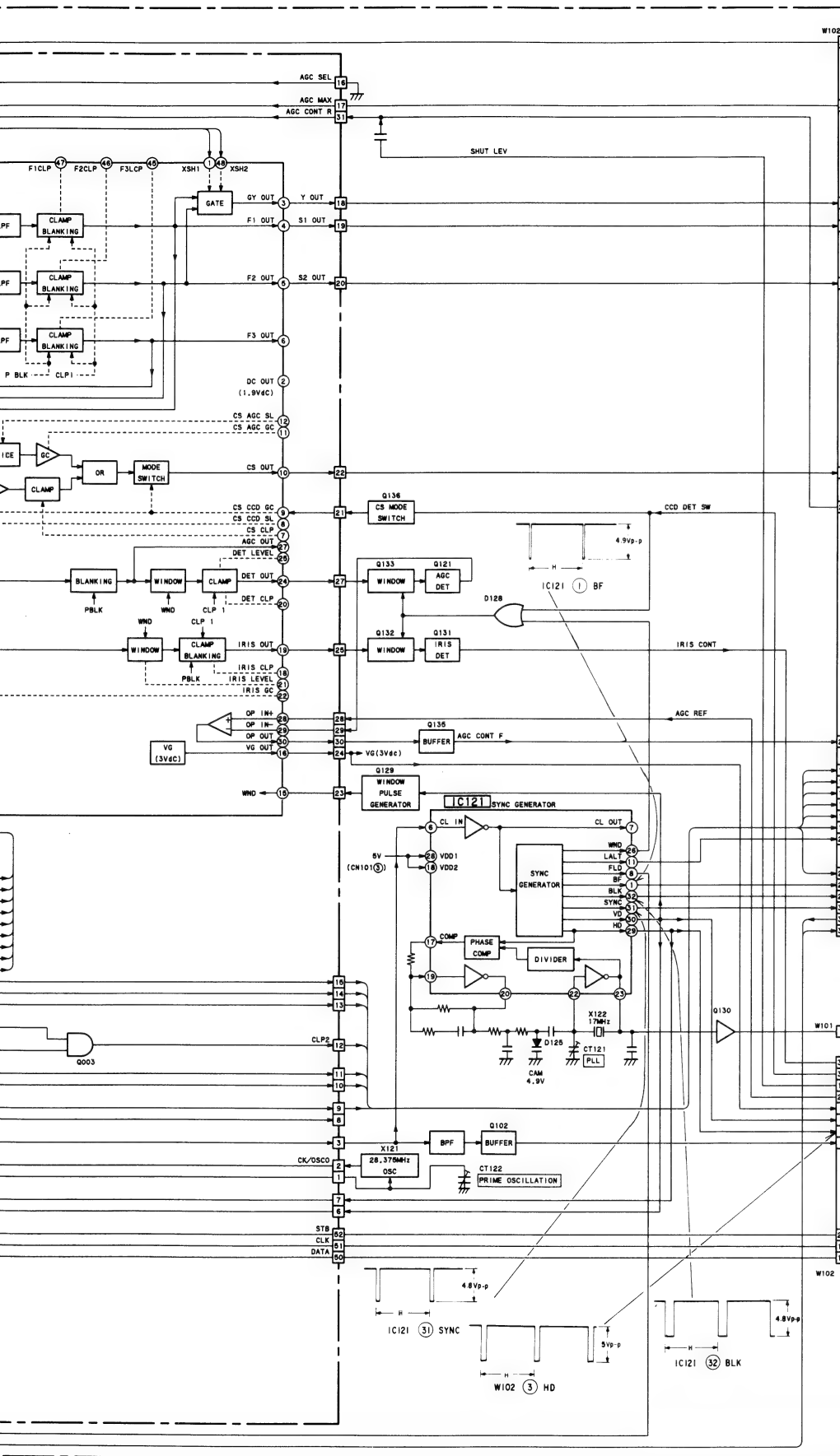


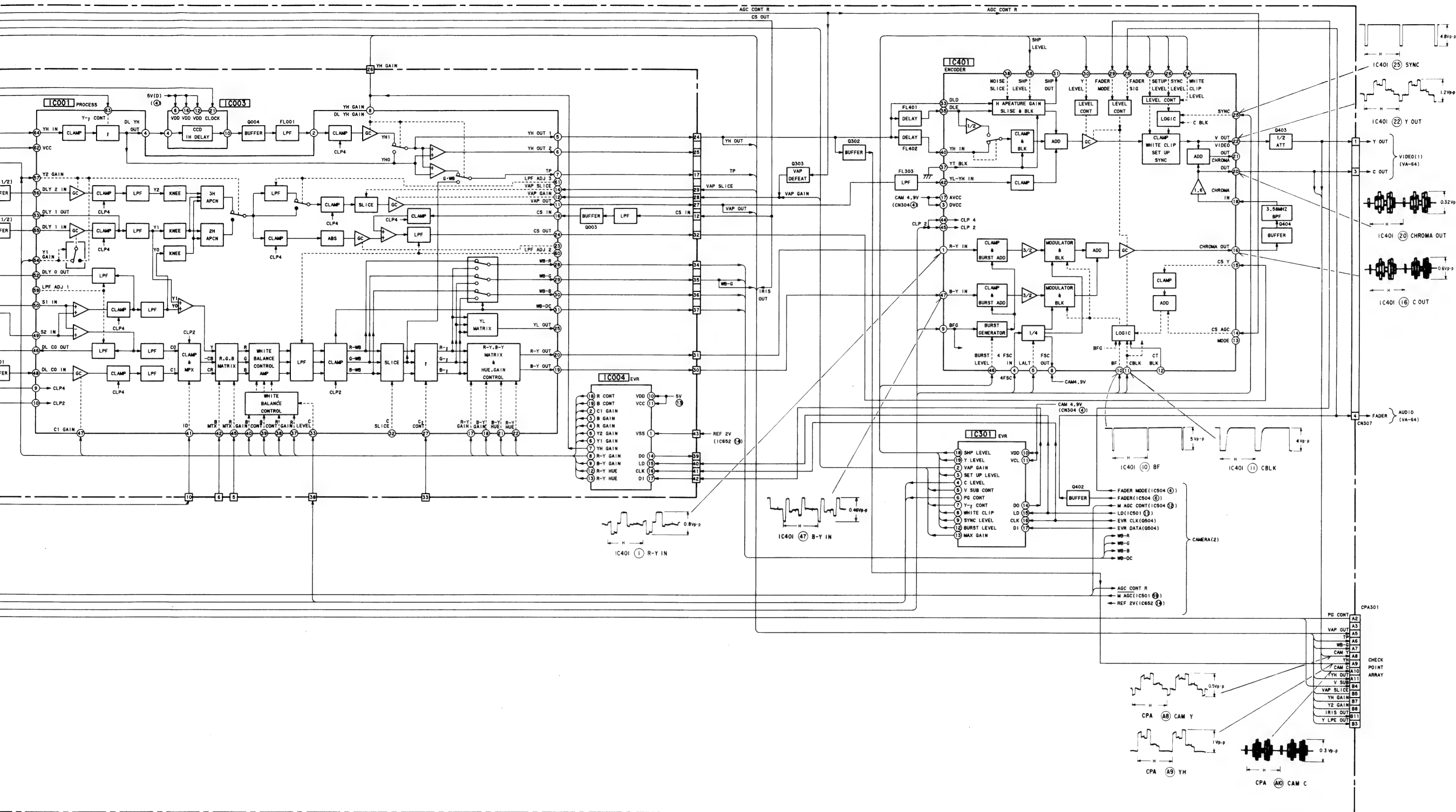
123.)



3-3. CAMERA (1) BLOCK DIAGRAM







3-4. CAMERA SYSTEM CONTROL VC-86 BOARD IC501 (MC68HC11E9)

[Description]

MC68HC11E9 is a 8-bit one-chip micro controller with a built-in nonvolatile memory (EEPROM). The camera system can be controlled by only this micro controller. In addition, protocol master control of the LANC communication can be performed.

1. Function

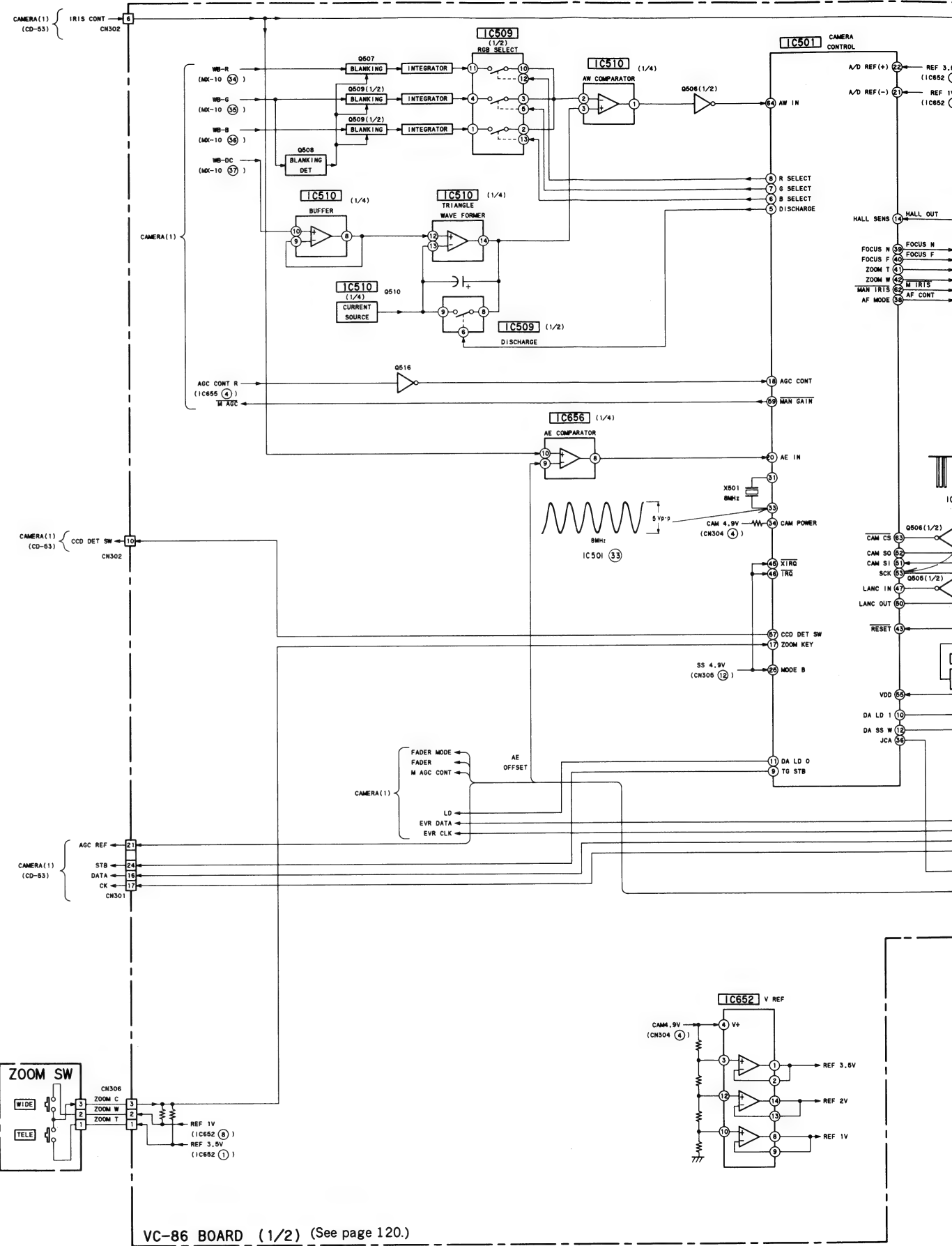
- 1) EVR Control
- 2) AWB Control
- 3) AE Control
- 4) LANC communication protocol control

2. Pin Description

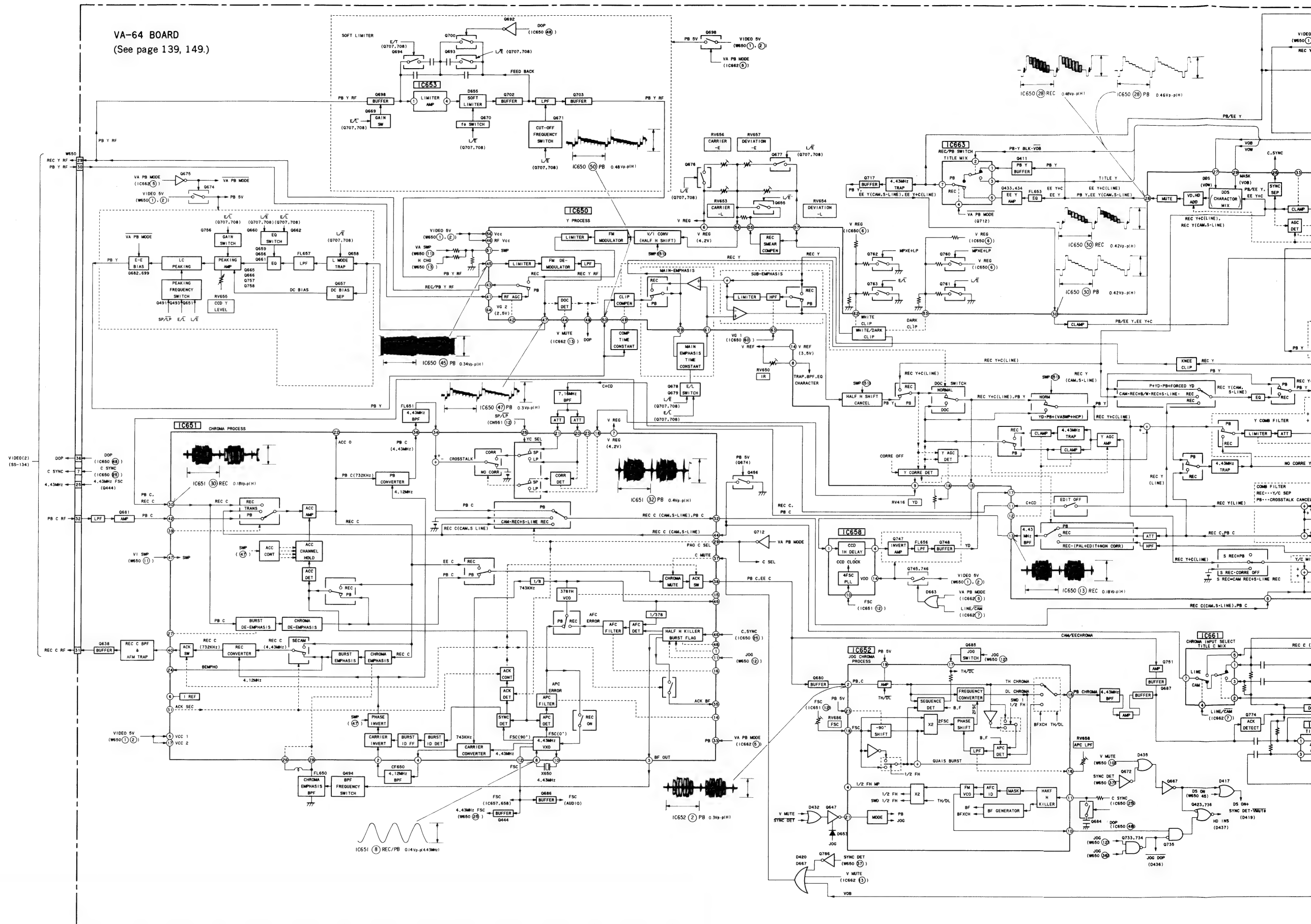
PIN No.	PIN Name	I/O	Function
1	AE	I	—
2	NC	—	—
3	NC	—	—
4	NC	—	—
5	DISCHG	O	AWB. AE Integration-type A/D reset pulse
6	B SELECT	O	AWB Instrumentation line select pulse (blue)
7	G SELECT	O	AWB Instrumentation line select pulse (green)
8	R SELECT	O	AWB Instrumentation line select pulse (red)
9	TG STB	O	TG strobe.
10	DA LD1	O	D/A (IC504) load pulse.
11	DA LD0	O	D/A (MX-10 Board, IC301) load pulse.
12	DA SSW	O	D/A communication line switching.
13	F SENS1	I	—
14	HALL SENS	I	Hall element voltage input (Analog input)
15	ZOOM SENS	I	—
16	AN5	I	—
17	ZOOM KEY	I	Zoom switch voltage input (Analog input)
18	AGC CONT	I	AGC voltage input (Analog input)
19	F SENS2	I	—
20	AE IN	I	Integral type A/D converter comparactor input for AE.
21	A/D REF(—)	—	Built-in A/D converter the minimum standard voltage (Analog input)
22	A/D REF(+)	—	Built-in A/D converter the minimum standard voltage (Analog input)
23	V _{SS}	—	GND
24	V _{SS}	—	GND
25	MODE B	I	Pull up to SS4.9V
26	NC	—	—
27	MODA	I	Pull down to GND
28	STR A	—	—
29	E	—	—
30	STR B	—	—
31	EXTAL	O	Built-in inverter output for oscillating element
32	NC	—	—

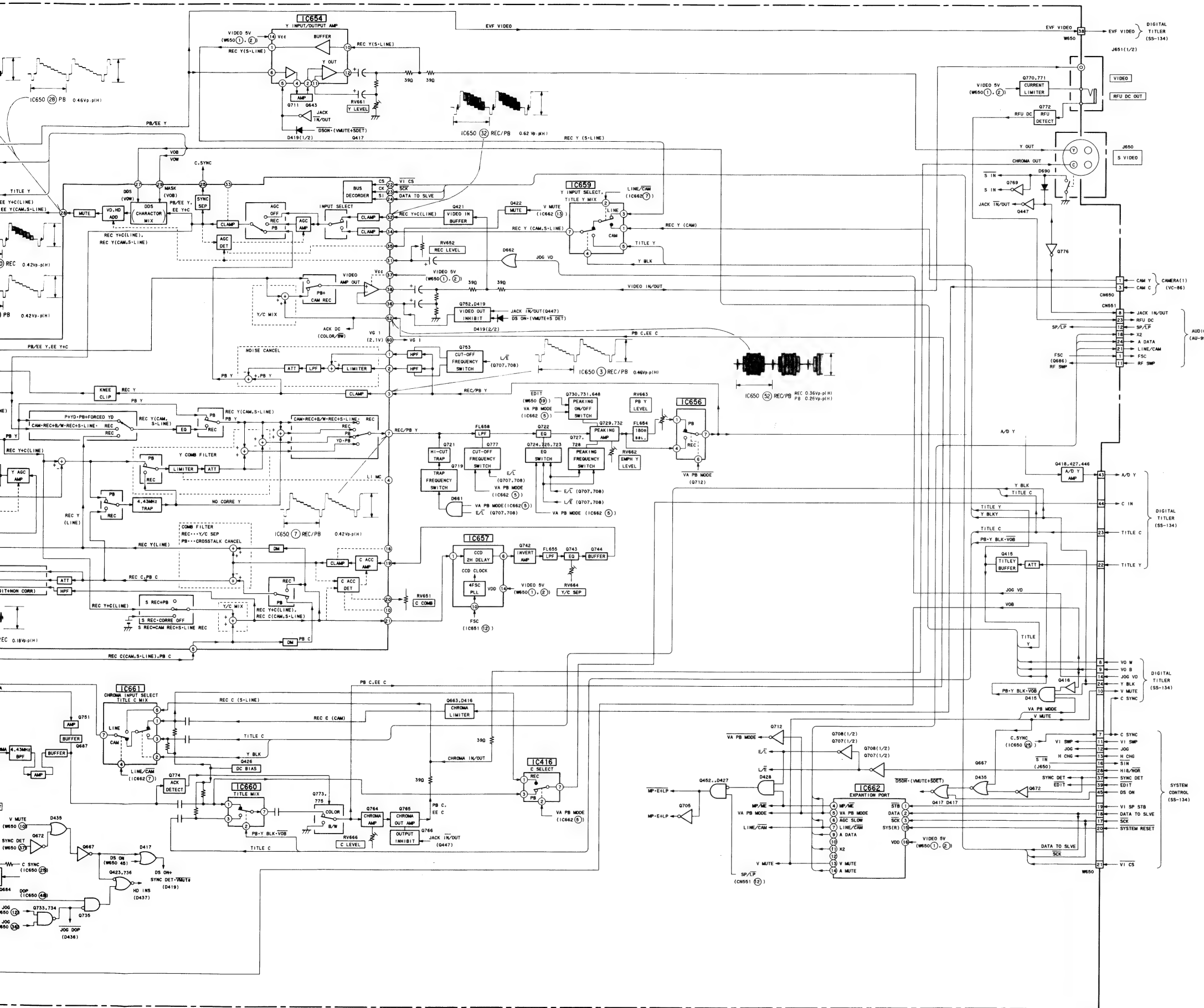
3-5. CAMERA (2) BLOCK DIAGRAM

PIN No.	PIN Name	I/O	Function
33	XTAL	I	Built-in inverter input for oscillating element
34	CAM POWER	I	Camera power source rise supervision
35	NC	—	—
36	JCS	O	—
37	PC2	—	—
38	AF MODE	O	ON/OFF specification of AF mode.
39	FOCUS N	O	Focus motor N-direction rotating designation
40	FOCUS F	O	Focus motor ∞-direction rotating designation
41	ZOOM T	O	Zoom motor T-direction rotating designation
42	ZOOM W	O	Zoom motor W-direction rotating designation
43	RESET	I	Reset
44	NC	—	—
45	XIRQ	I	Pull up to SS4.9V
46	IRQ	I	Pull up to SS4.9V
47	LANC IN	I	LANC input
48	NC	—	—
49	V _{SS}	—	GND
50	LANC OUT	O	LANC output
51	CAM SI	I	Serial data input
52	CAM SO	O	Serial data output
53	SCK	O	Serial clock
54	SENS DRIVE	O	—
55	V _{DD}	—	SS4.9V
56	FADER B/W	O	Specification of FADER mode.
57	PA6	O	CCD DET switch select
58	OC3	—	—
59	MAN GAIN	O	AGC system automatic/manual select
60	NC	—	—
61	NC	—	—
62	MAN IRIS	O	IRIS system automatic/manual select
63	CAMCS	I	Camera chip select input
64	AW IN	I	AWB Integration-type A/D converter comparator input

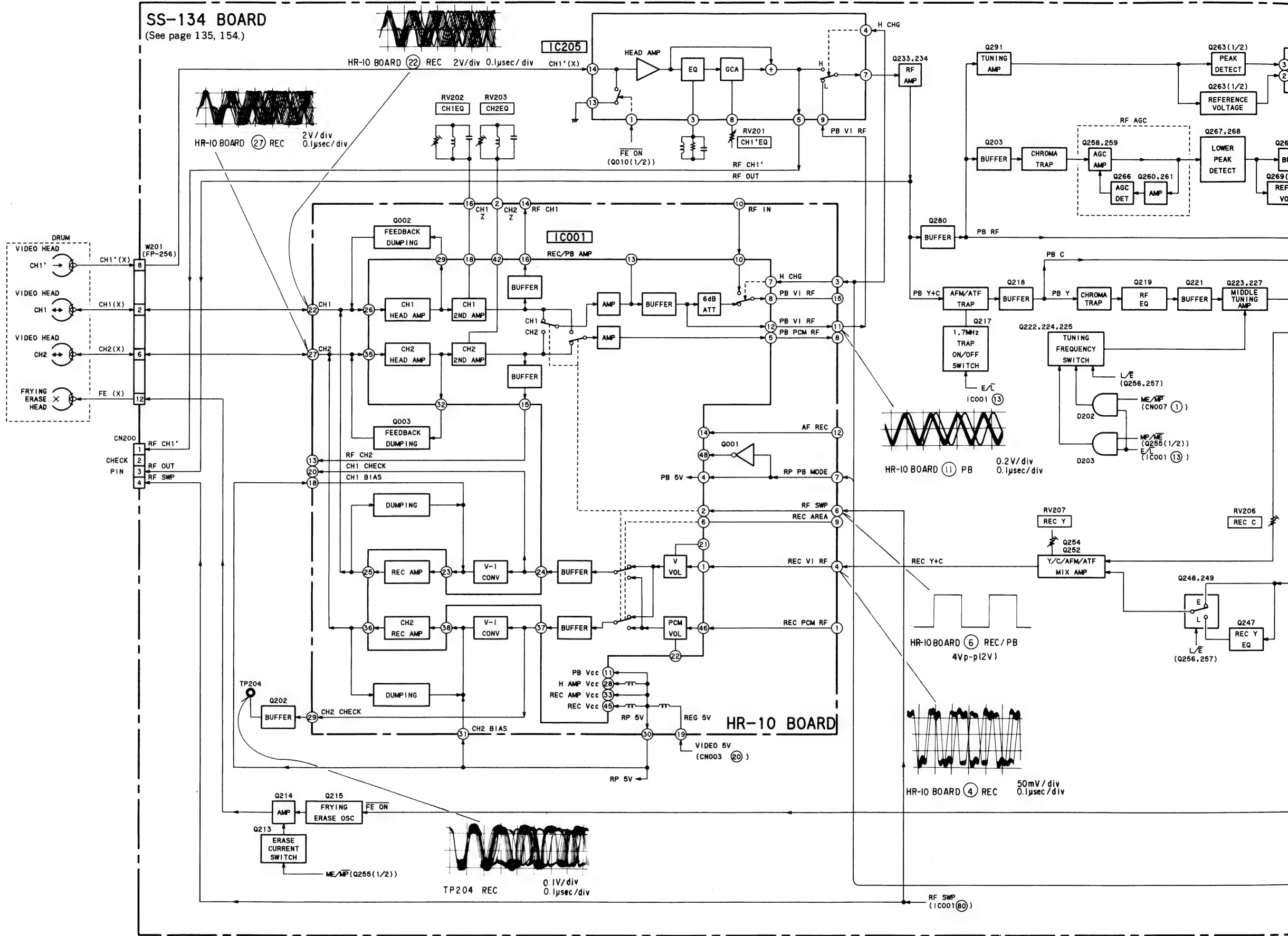


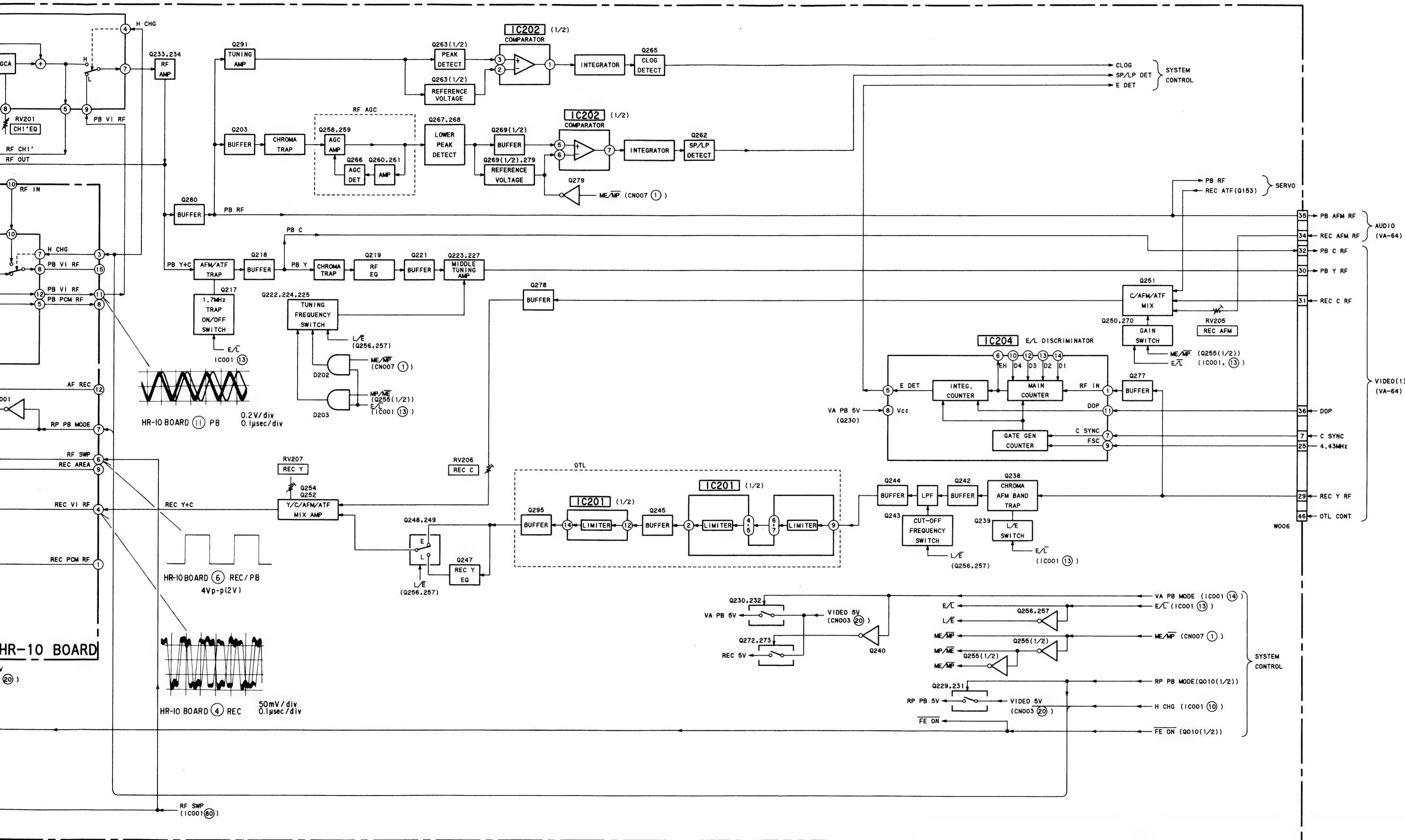
3-7. VIDEO (1) BLOCK DIAGRAM



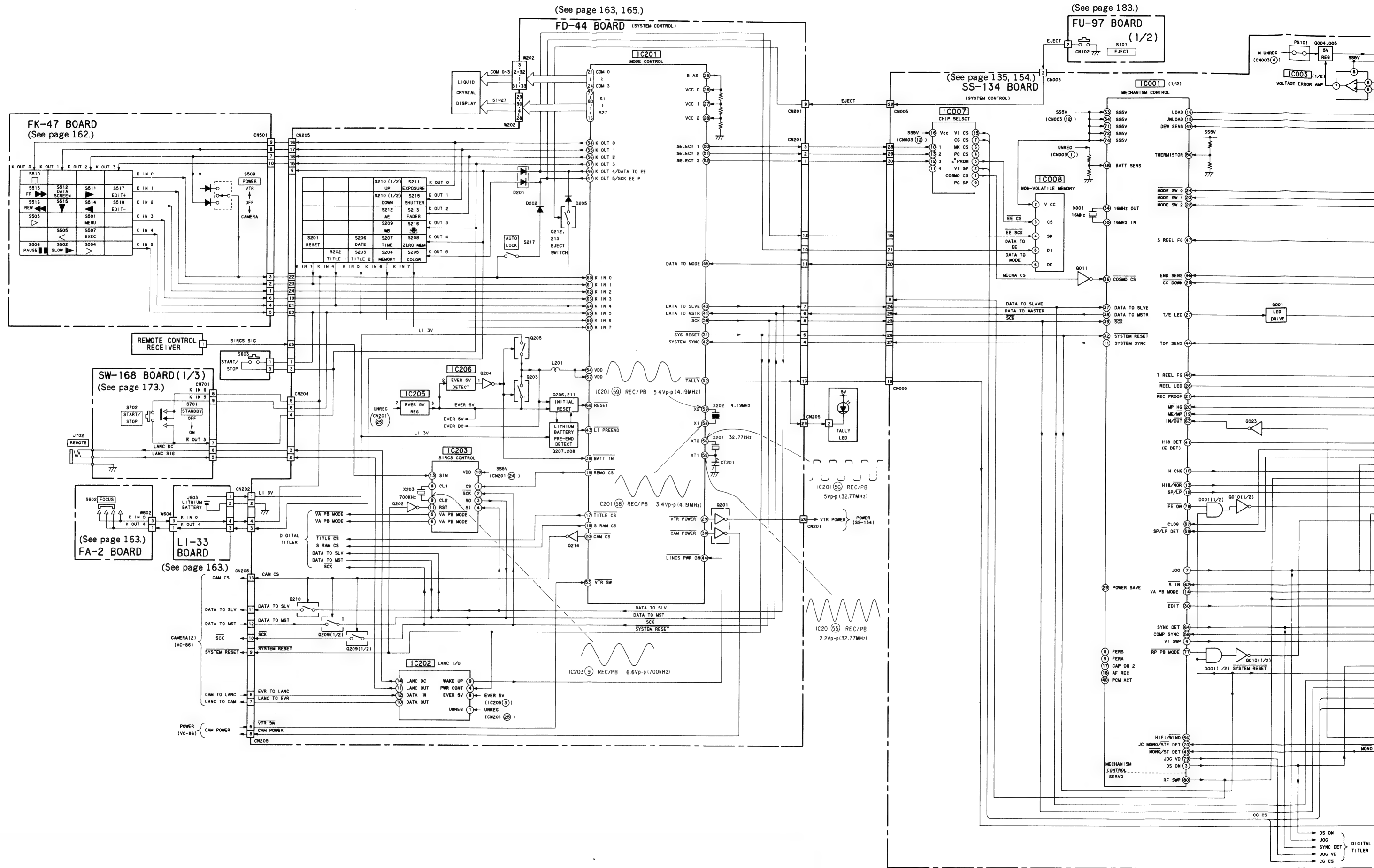


3-8. VIDEO (2) BLOCK DIAGRAM





3-9. SYSTEM CONTROL BLOCK DIAGRAM



FD-44 BOARD (SYSTEM CONTROL)

FU-97 BOARD
(1/2)

(See page 135, 154.)
SS-134 BOARD
(SYSTEM CONTROL)

IC001 (1/2)

(See page 153.)

(See page 153.)

(See page 153.)

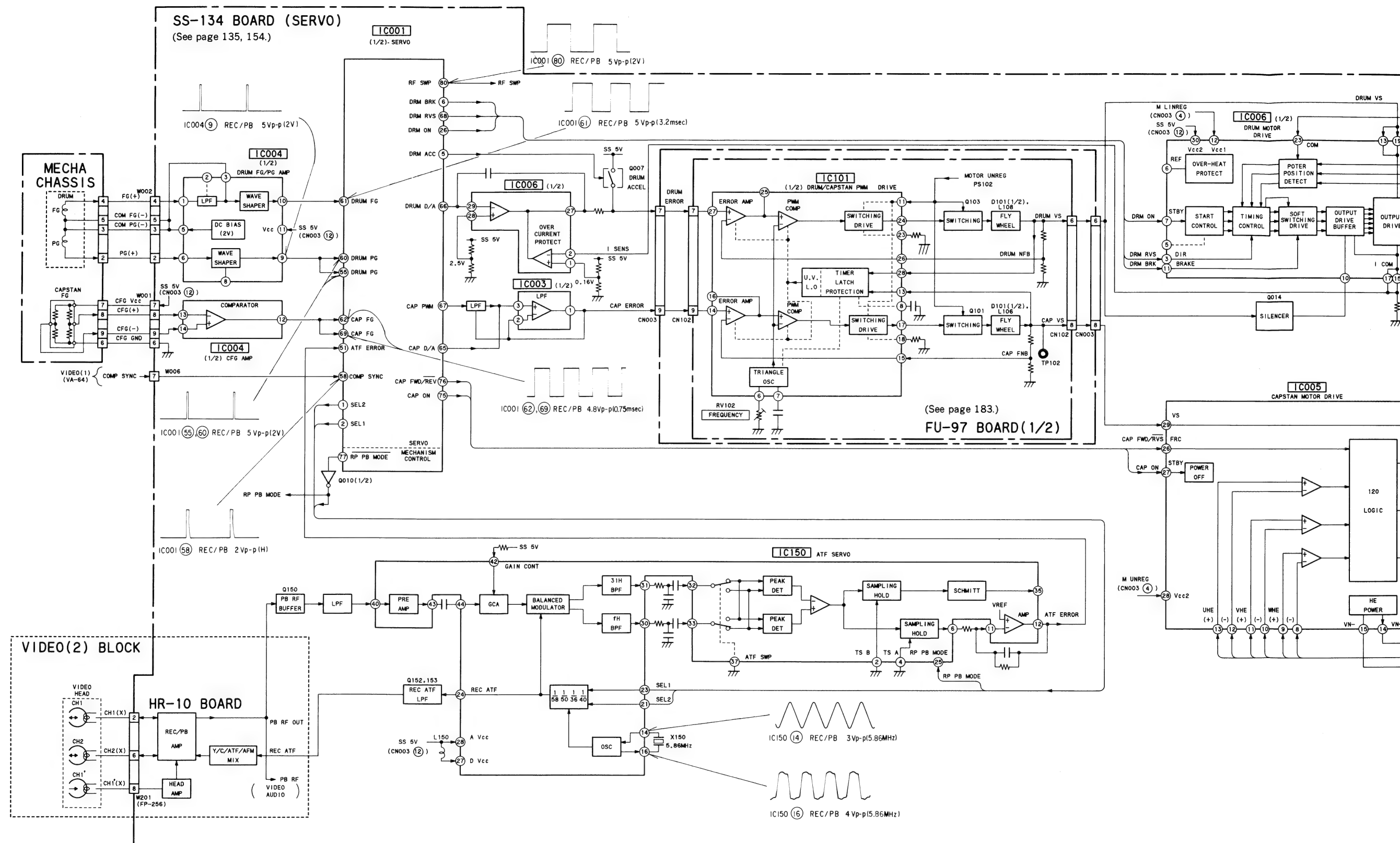
(See page 139, 149.)

VA-64 BOARD

AUDIO BLOCK

(See page 174.)

3-10. SERVO BLOCK DIAGRAM



3-11. SERVO, SYSTEM CONTROL SYSTEM TERMINAL FUNCTION SS-134 BOARD IC001 (CXP-80116)

PIN No.	Signal Name	I/O	Function	Connection
1	SEL2	O	ATF REF PILOT signal frequency control	ATF IC
2	SEL1	O	ATF REF PILOT f_1 f_2 f_3 f_4 SEL 1 H L H L SEL 2 H H L L	CXA1204Q
3	DS ON	O	Data Screen ON/OFF control. Data Screen On and Data Screen key are selected with "H"	IC101 ②
4	VI SWP	O	RF SWP using for Video system Normally, same as RF SWP. When using 'CH only "H" 3Head is used.	VIDEO block
5	DRM ACC	O	DRUM motor acceleration signal Acceleration is selected with "H"	To Drum motor driver CXA8006M
6	DRM BRK	O	DRUM motor brake signal Brake is selected with "H"	To Drum motor driver CXA8006M
7	JOG	O	Normal/JOG mode recognition signal JOG is selected with "H"	R/P Amp VIDEO block
8	FE RS	—	Not used	—
9	FE RA	—		
10	H CHG	O	2CH or 'CH select signal 'CH is selected with "H" Only 3Head is used	VIDEO system R/P Amp
11	SYSTEM SYNC	O	Internal bus communication synchronizing signal (V synchronization)	Mode controller
12	SP/LP	O	SP/LP mode recognition signal SP mode is selected with "H"	R/P Amp VIDEO/AUDIO block
13	NOR/Hi8	O	Hi8/NOR mode output	VIDEO block
14	VA PB MODE	O	VIDEO/AUDIO system REC/PB mode select PB mode is selected with "H"	VIDEO/AUDIO block
15	UNLOAD	O	Loading motor control signal	TO loading motor
16	LOAD	O	OFF LOADING UNLOADING BRAKE LOAD L H L H UNLOAD L L H H	
17	CAP ON2	—	Not used	—
18	AF REC	—	Not used	—
19	ME/MP	I	ME/MP tape recognition input ME tape is selected with "H"	To CC board
20	MP HG	I	MP HG tape recognition input MPHG is selected with "L"	To CC board
21	REC PROOF SW	I	REC PROOF recognition input REC PROOF is selected with "L"	To CC board
22	MODE SW2	I	Mechanical position input	To CC board
23	MODE SW1	I		
24	MODE SW0	I		
25	CC DOWN	I	Cassette IN switch input Cassette IN is selected with "L"	To CC board
26	DRM ON	O	Drum motor drive control Motor Drive is selected with "H"	To Drum motor driver CXA8006M
27	T/E LED	O	LED for tape top end sensor drive control LED Flashing is selected with "H"	To CC board
28	REEL LED	O	LED for reel sensor drive control LED Flashing is selected with "L"	To CC board

PIN No.	Signal Name	I/O	Function	Connection
29	POWER SAVE	O	Marker block POWER SAVE control signal	—
30	$\overline{\text{EDIT}}$	O	EDIT ON/OFF control EDIT is selected with "L" and interlocked with EDIT key.	To VIDEO block
31	SS GND	—	—	—
32	$\overline{\text{SYSTEM RESET}}$	I	Control by mode controller with RESET terminal of this microcomputer RESET is selected "L"	Mode controller and others
33	SS GND	—	—	—
34	16M OUT	O	Crystal connecting terminal for system clock oscillation (16 MHz)	X'tal (X001)
35	16M IN	I		
36	$\overline{\text{COSMO CS}}$	I	Select signal of this microcomputer from internal bus communication mode controller Selected with "L"	Mode controller
37	DATA TO SLVE	I	Serial data input terminal	Mode controller
38	DATA TO MSTR	O	Serial data output terminal	Mode controller
39	$\overline{\text{SCK}}$	I	Serial clock input terminal	Mode controller
40	PCM ACT	—	Not used	—
41	Hi8 DET	I	Hi8 with Hi8/NOR distinction input "H" when playing back	IC204 (CXA2017)
42	S IN	I	Distinction input of the S terminal connection	VIDEO block
43	$\overline{\text{MONO/ST DET}}$	I	AFM monaural/stereo recognition input Stereo is selected "H" (Only stereo correspondence model)	To AUDIO block
44	TOP SENS	I	Tape top end sensor input TOP is selected with "H" END is selected with "H"	To CC board
45	END SENS	I		
46	T REEL FG	I	Reel sensor input Take up side	To CC board
47	S REEL FG	I	Reel sensor input Supply side	
48	BATT SENS	I	Battery input voltage sense	—
49	DEW SENS	I	DEW SENSOR input	DEW SENSOR, To CC board
50	THERMISTOR	I	THERMISTOR input (This model: fixed value)	
51	ATF ERROR	I	ATF error (ATF LOCK error) input, A/D input terminal	IC105 (CXA1204Q)⑫
52	SS GND	—	—	—
53 54	SS 4.9V		Power source supply terminal	
55	DRM PG	I	DRUM PG input, FRC (high precision timer) capture input terminal	IC502 ⑨
56	HiFi/WIND	I	Not used	—
57	CLOG	I	Clog detection signal input. CLOG is selected with "H"	Q265 ③
58	COMP SYNC	I	Composite trunk (composite synchronizing signal) input. (built-in V SYNC separator)	To VIDEO block
59	SP/LP DET	I	SP/LP recognition signal input	Q262 ③
60	DRM PG	—	—	—
61	DRM FG	I	DRUM FG input terminal, FRC capture input terminal	IC004 ⑩ Sense Amplifier

PIN No.	Signal Name	I/O	Function	Connection
62	CAP FG	I	CAPSTAN FG input terminal, FRC capture input terminal	IC502⑫ Sense amplifier
63	IN/OUT	O	Input-output selecting switch control signal	VIDEO block
64	SYNC DET	I	With/Without VIDEO signal recognition signal input	To VIDEO block
65	CAP D/A	O	DA gate pulse output terminal for CAP ERROR output, Servo exclusive output terminal (DA mode)	To capstan lowpass filter
66	DRM D/A	O	DA gate pulse output terminal for DRUM ERROR output, Servo exclusive output terminal (DA mode)	To drum lowpass filter
67	CAP PWM	O	PWM output terminal for CAP ERROR output, Servo exclusive output terminal (PWM mode)	Capstan driver IC503
68	DRM RVS	O	DRUM rotating direction control signal RVS is selected with "H" FWD is selected with "L"	IC006 ③
69	CAP FG	I	External event input terminal to CAP FG input terminal exclusive counter for TAPE COUNTER drive	IC004⑫ sense amplifier
70	MIC JACK MONO/ST	I	External MIC Monaural/stereo recognition signal. Monaural is selected with "H"	To AUDIO block
71 72	SS 4.9V			
73	SS GND	—	—	—
74	—	—	Not used	—
75	CAP ON	O	Capstan driver ON control signal	IC005⑬ Capstan driver
76	CAP FWD/REV	O	Capstan rotating direction control signal, FWD is selected with "H", RVS is selected with "L"	IC005⑭ Capstan driver
77	RP PB MODE	O	REC/PB mode select signal of RP amplifier and ATF IC	Q010 ⑧
78	FE ON	O	Flying erase oscillation ON/OFF signal. Oscillation is selected with "H"	To RP AMP.
79	JOG VD	O	Artificial VD output terminal input to VIDEO signal in varying speed playback	To VIDEO block
80	RF SWP	O	RF SWP output terminal	RP block VIDEO/AUDIO block

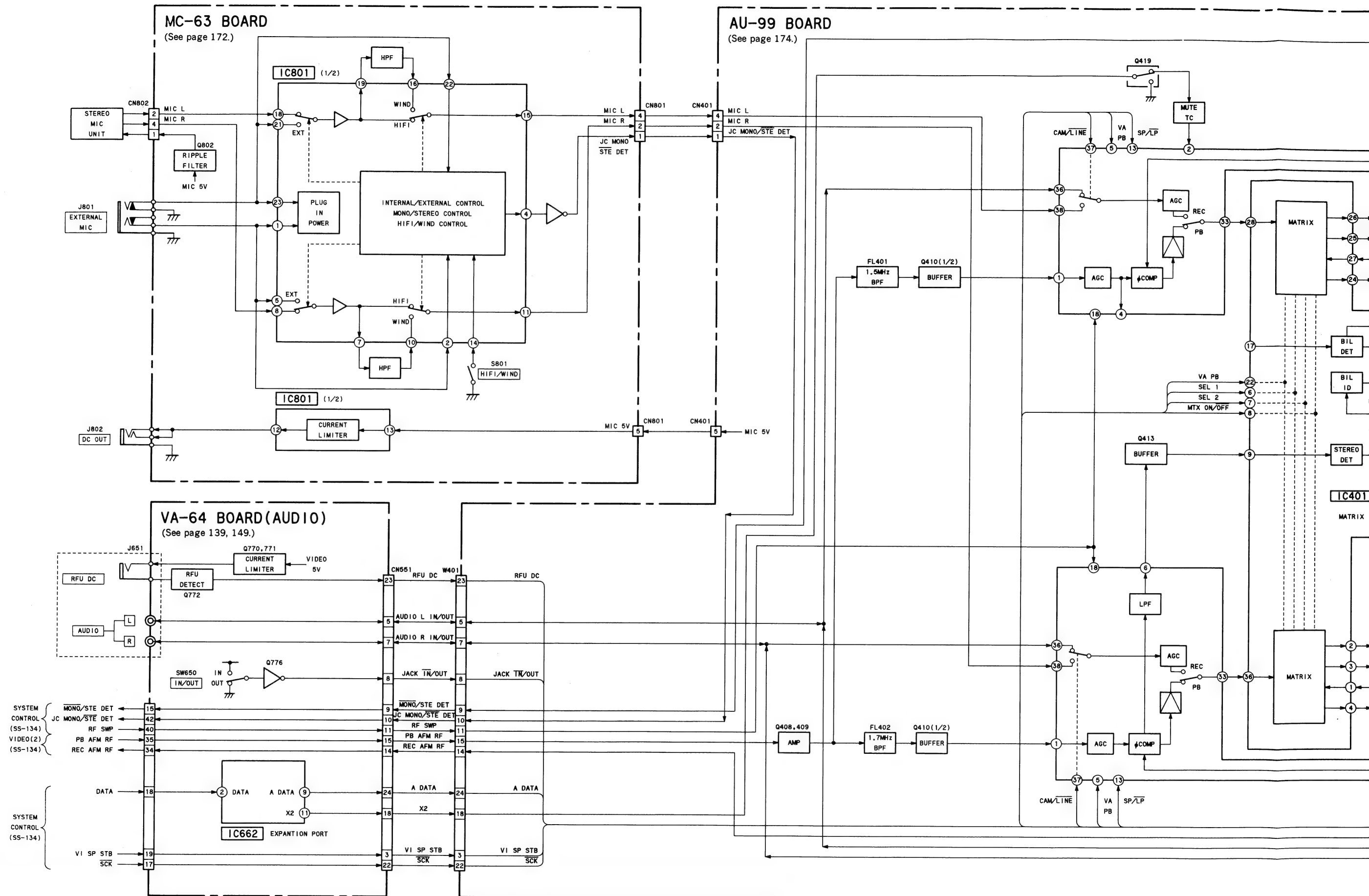
Decoder port for the chip cell allocation list (TC4028)

No.	Port name	Port allocation name
3	Q0	E ² -ROM CS
14	Q1	
2	Q2	VA S/P STB
15	Q3	Φ II SR CS
1	Q4	COSMO CS
6	Q5	—
7	Q6	CG STB
4	Q7	PCM CS
9	Q8	PCM S/P STB
5	Q9	—

3-12. MODE CONTROL SYSTEM TERMINAL FUNCTION FD-44 BOARD IC201 (μ PD75316)

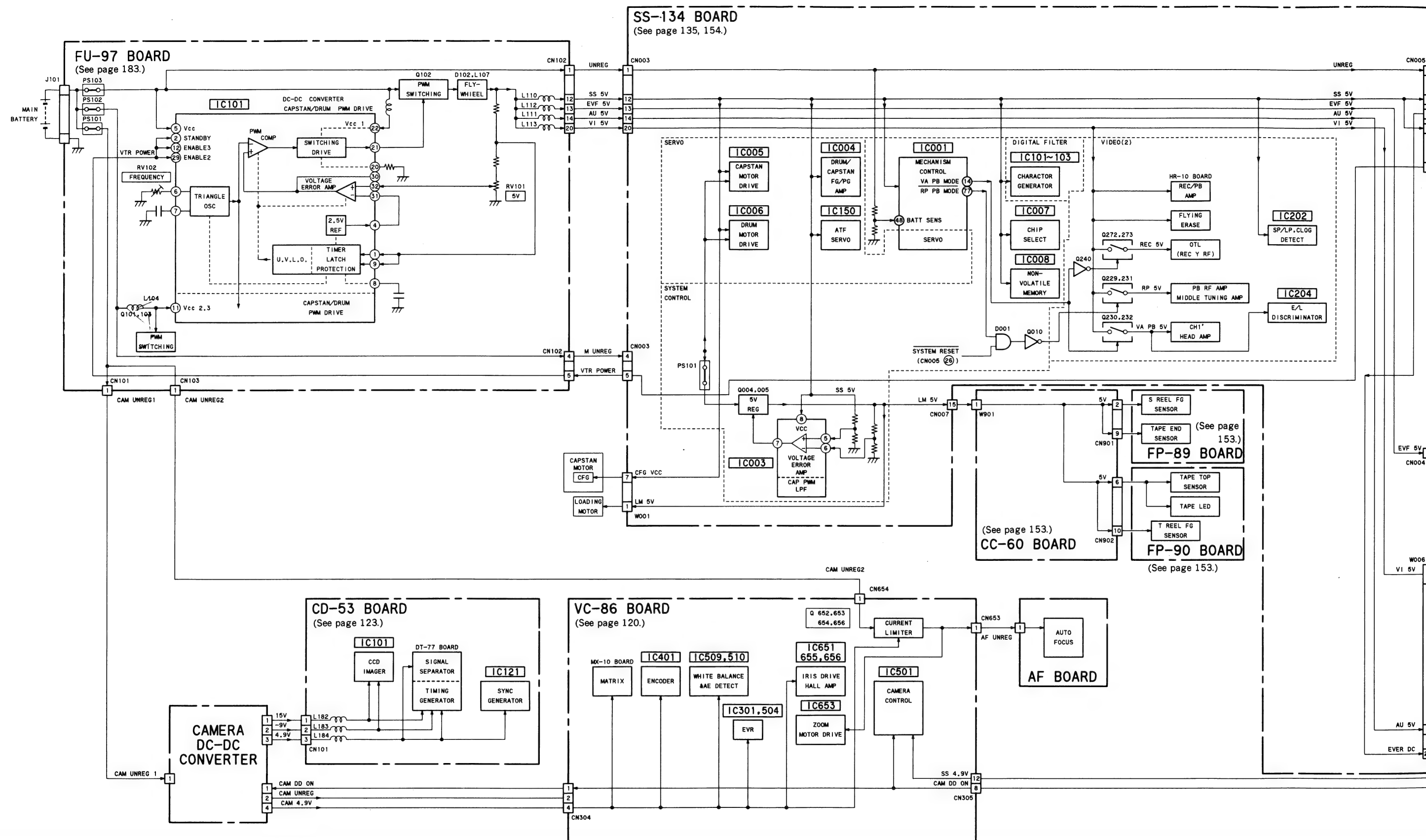
Pin No.	Port name	Port allocation name	I/O	The another connection	Function•Remarks
1	S12		O	LCD	Segment signal output terminal of the liquid crystal display element (LCD)
2	S13		O	LCD	
3	S14		O	LCD	
4	S15		O	LCD	
5	S16		O	LCD	
6	S17		O	LCD	
7	S18		O	LCD	
8	S19		O	LCD	
9	S20		O	LCD	
10	S21		O	LCD	
11	S22		O	LCD	
12	S23		O	LCD	
13	S24/BP0		O	LCD	
14	S25/BP1		O	LCD	
15	S26/BP2		O	LCD	
16	S27/BP3		O	LCD	
17	S28/BP4	TITL CS	O	FD	Chip selector signal of the standard cell for titler (IC301)
18	S29/BP5	~REMO CS	O	FD	Chip selector signal of the wireless remote control reception microcomputer (IC203)
19	S30/BP6	S RAM CS	O	FD	Chip selector signal of RAM for the titler (IC302)
20	S31/BP7	~CAM CS	O	CAM	Chip selector signal of the camera microcomputer (IC501)
21	COM0			LCD	Remote control signal output terminal of the liquid crystal display element (LCD)
22	COM1			LCD	
23	COM2			LCD	
24	COM3			LCD	
25	BIAS			LCD	Output terminal for dividing resistance cut of the liquid crystal display element (LCD)
26	VLC0			LCD	Power source supply terminal of the liquid crystal display element (LCD)
27	VLC1			LCD	
28	VLC2			LCD	
29	P40	~VTR POWER	O	FU	Turning ON/OFF signal of the VTR system DC/DC converter
30	P41	~CAM POWER	O	CAM	Turning ON/OFF signal of the CAM system DC/DC converter
31	P42	~SYSTEM RESET	O	ALL	Initializing (reset) signal of each microcomputer or IC
32	P43	~TALLY	O	VF	Tally LED flashing signal
33	VSS				Ground power source
34	P50	K OUT 0	O	FD	Output signal of the key matrix
35	P51	K OUT 1	O	FD	
36	P52	K OUT 2	O	FD	
37	P53	K OUT 3	O	FD	
38	P00/INT4	~BATT IN	I	FD	Signal for the battery or the AC adapter attaching/removing detection

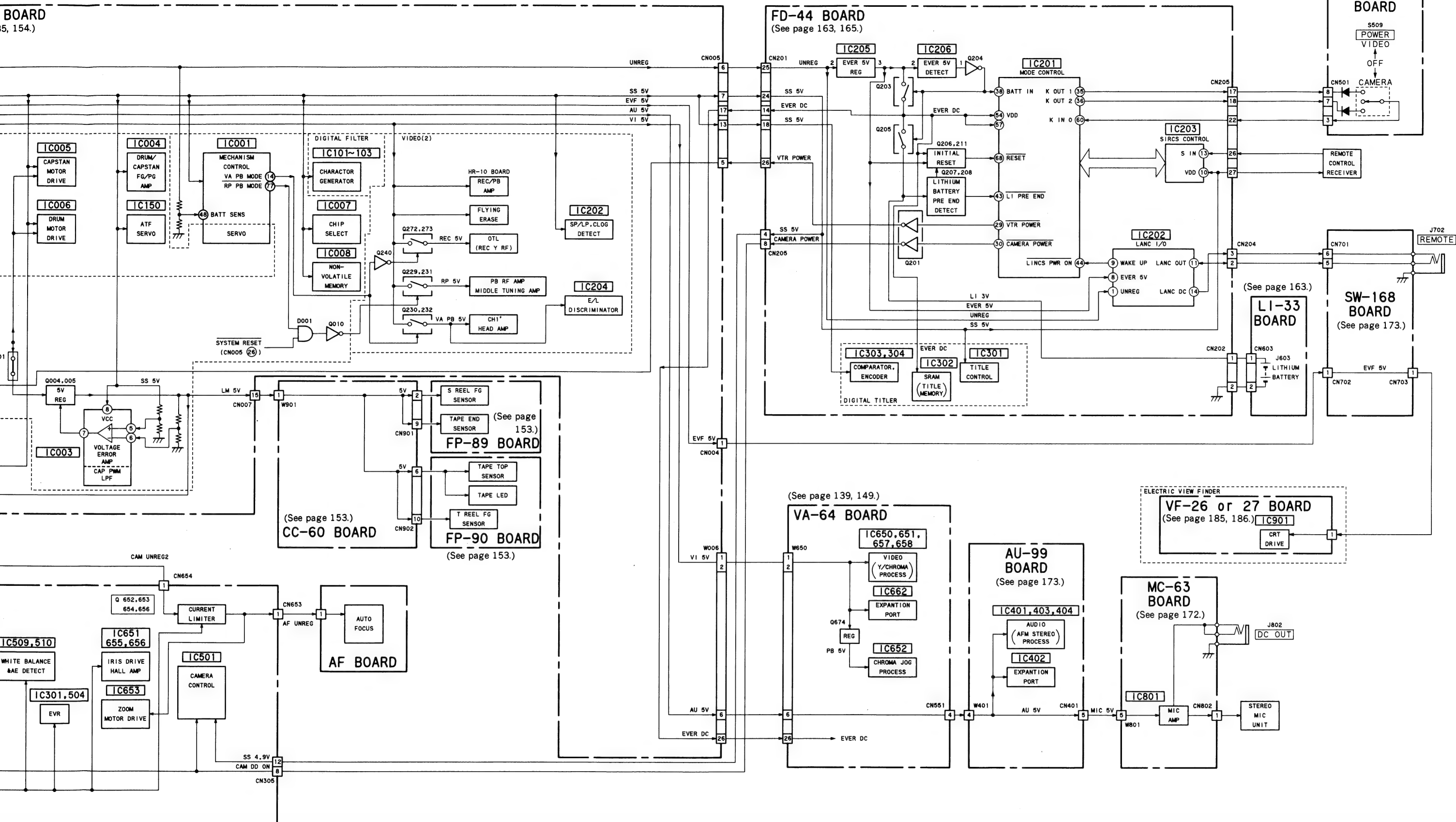
Pin No.	Port name	Port allocation name	I/O	The another connection	Function•Remarks
39	P01/~SCK	~SCK	O/I	ALL	Serial clock for serial communication (This is input only when communicating with camera microcomputer)
40	P02/S0/SB0	DATA TO SLVE	O	ALL	Data output signal for serial communication
41	P03/SI/SB1	DATA TO MSTR	I	ALL	Data input signal for serial communication
42	P10/INT0	SYSTEM SYNC	I	SS	Timing signal for serial communication
43	P11/INT1	~LI PRE END	I	FD	Pre-end detection signal of the lithium battery (Set value is 2.8V or less)
44	P12/INT2	~LINCS PWR ON	I	FD	POWER ON requiring signal of the LANC communication (Power is turned on with L at 140ms or more)
45	P13/TI0	DATA TO MODE	I	SS	Serial communication data input signal of EE-PROM
46	P20/PT00	K OUT4/DATA TO E ²	O	SS	Data output signal of the output signal + EE-PROM of the key matrix
47	P21	K OUT5/~SCK E ²	O	SS	Serial clock signal of the output signal + EE-PROM of the key matrix
48	P22/PCL	K OUT 6	O	FD	Output signal of the key matrix
49	P23/BUZ				
50	P30/LCDCL	SELECT 1	O	SS	} Signal for producing chip select
51	P31/SYNC	SELECT 2	O	SS	
52	P32	SELECT 3	O	SS	
53	P33	~VTR SW	I	FD	Forced VTR mode signal (Uned at the place for business)
54	VDD				Positive voltage supplying terminal
55	XT1				} Crystal vibrator connecting terminal for clock
56	XT2				
57	NC				
58	X1				} Ceramic connecting terminal for the main system clock oscillation
59	X2				
60	P60/KR0	K IN 0	I	FD	} Key matrix input signal
61	P61/KR1	K IN 1	I	FD	
62	P62/KR2	K IN 2	I	FD	
63	P63/KR3	K IN 3	I	FD	
64	P70/KR4	K IN 4	I	FD	
65	P71/KR5	K IN 5	I	FD	
66	P72/KR6	K IN 6	I	FD	
67	P73/KR7	K IN 7	I	FD	
68	~RESET	~RESET	I	FD	Reset signal input terminal
69	S0		O	FD	} Output 1/64 of the oscillation for clock (32.768kHz/64 = 512Hz)
70	S1		O	LCD	
71	S2		O	LCD	
72	S3		O	LCD	
73	S4		O	LCD	
74	S5		O	LCD	
75	S6		O	LCD	
76	S7		O	LCD	
77	S8		O	LCD	
78	S9		O	LCD	
79	S10		O	LCD	
80	S11		O	LCD	



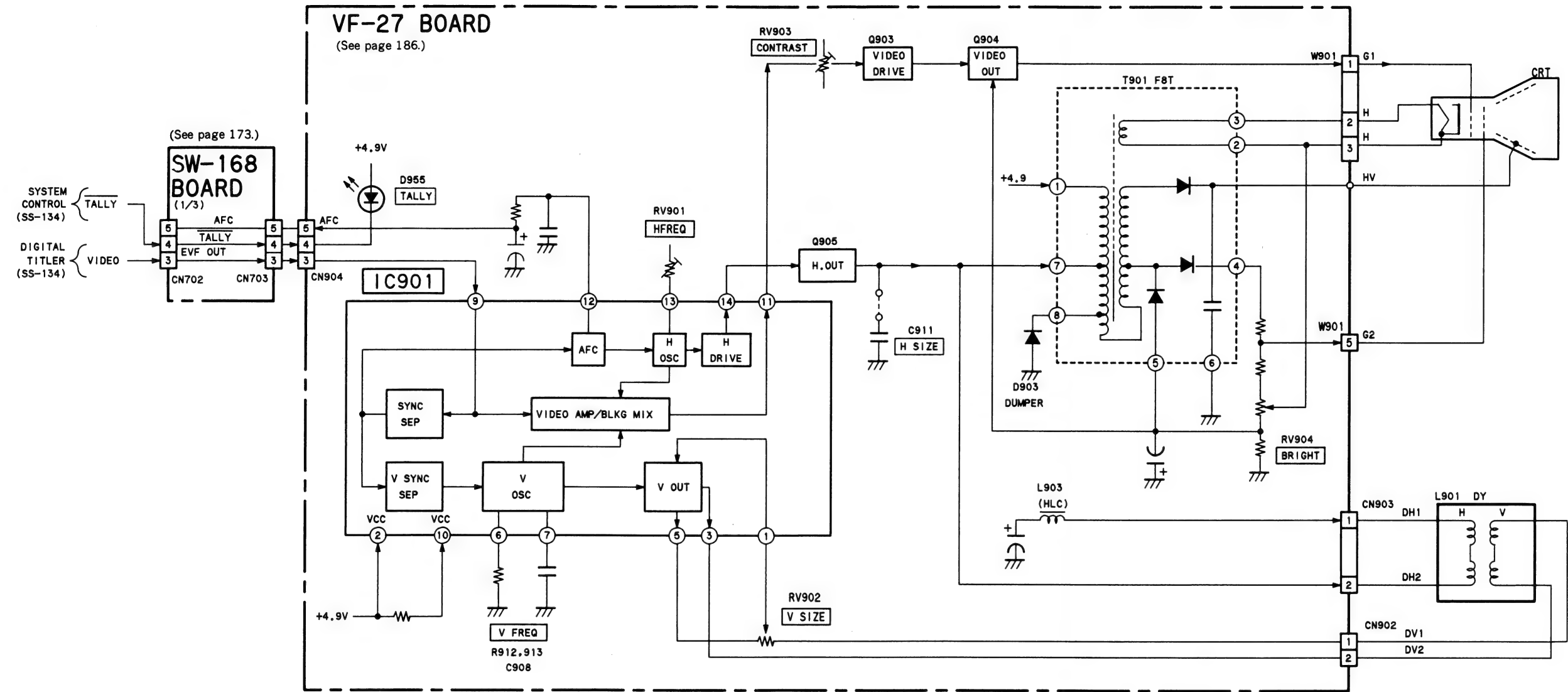


3-14. POWER BLOCK DIAGRAM

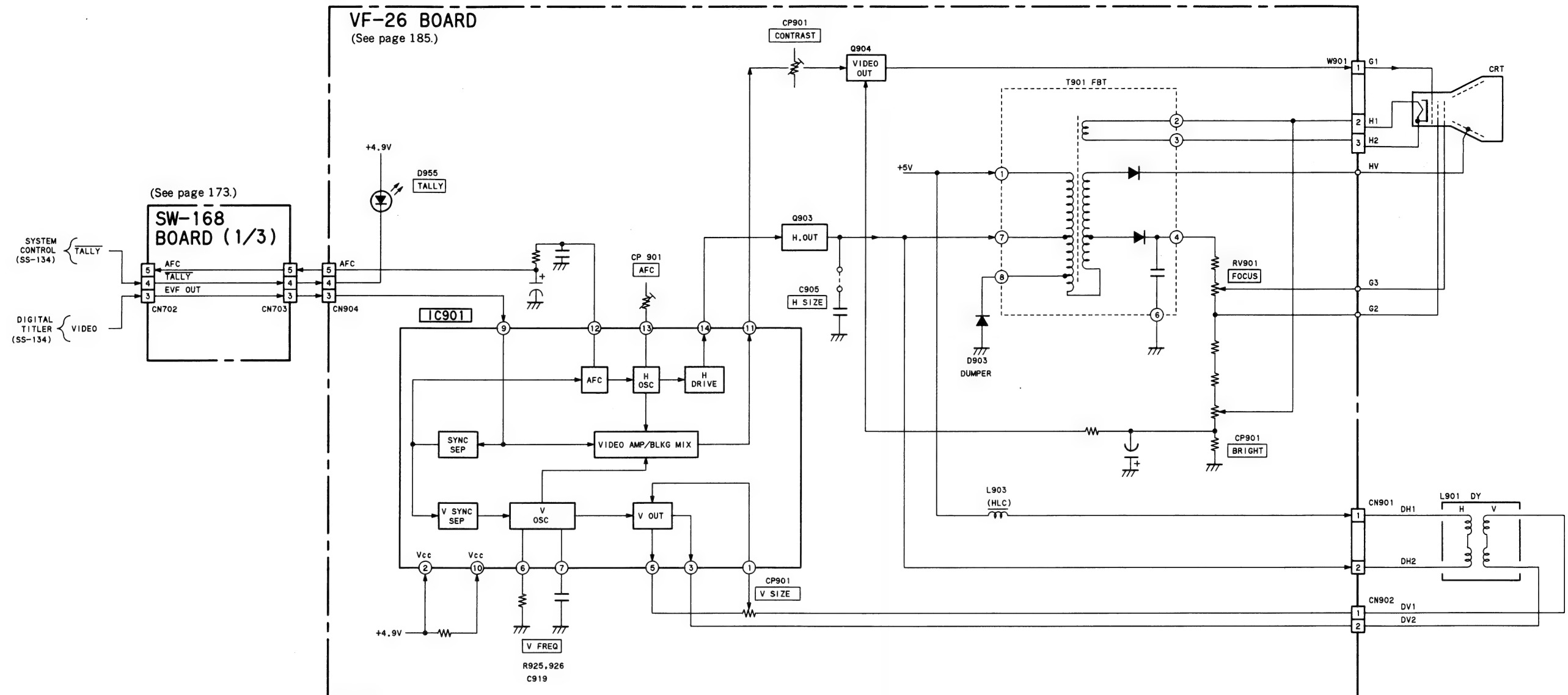




3-15. VIEWFINDER (A) BLOCK DIAGRAM

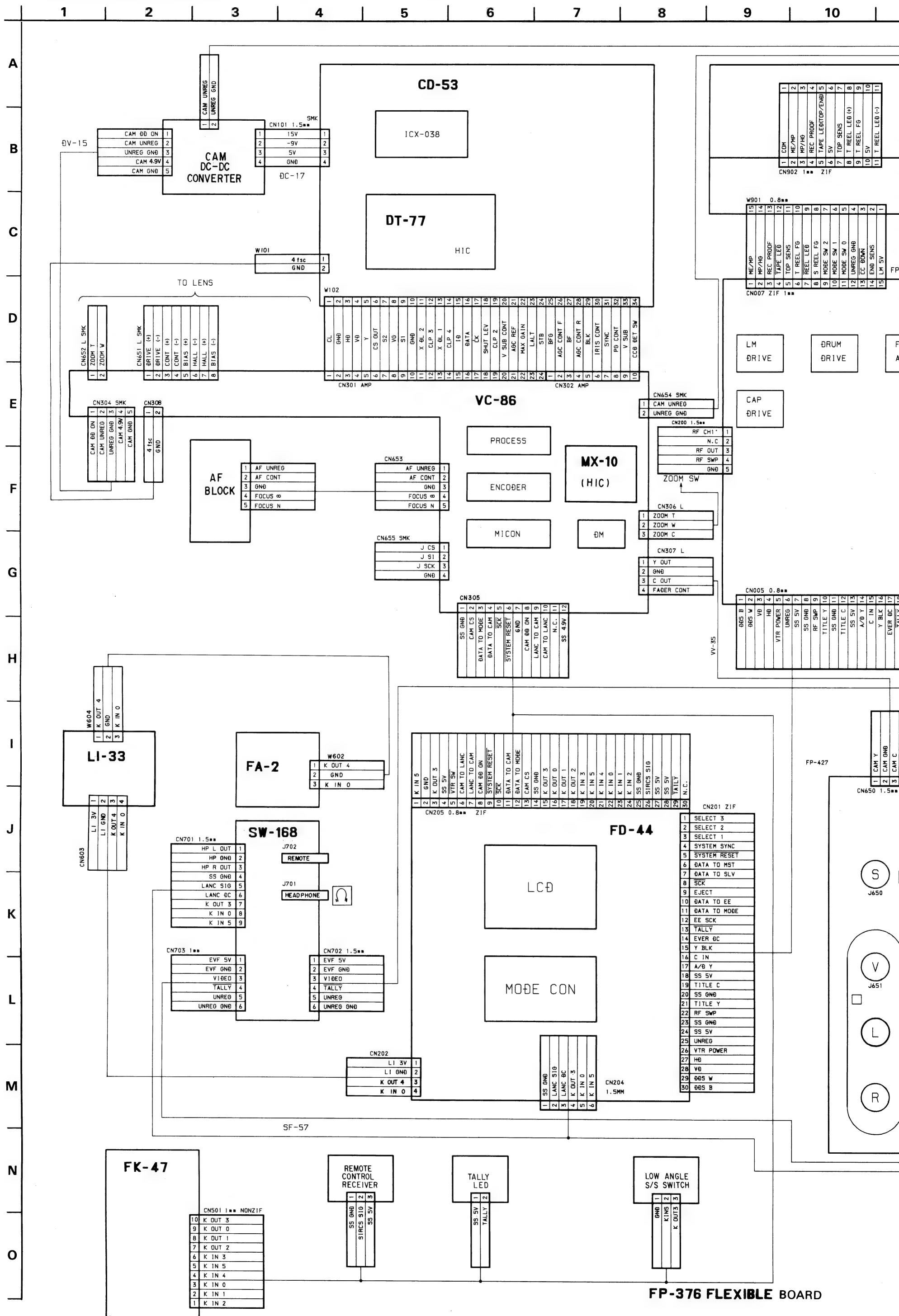


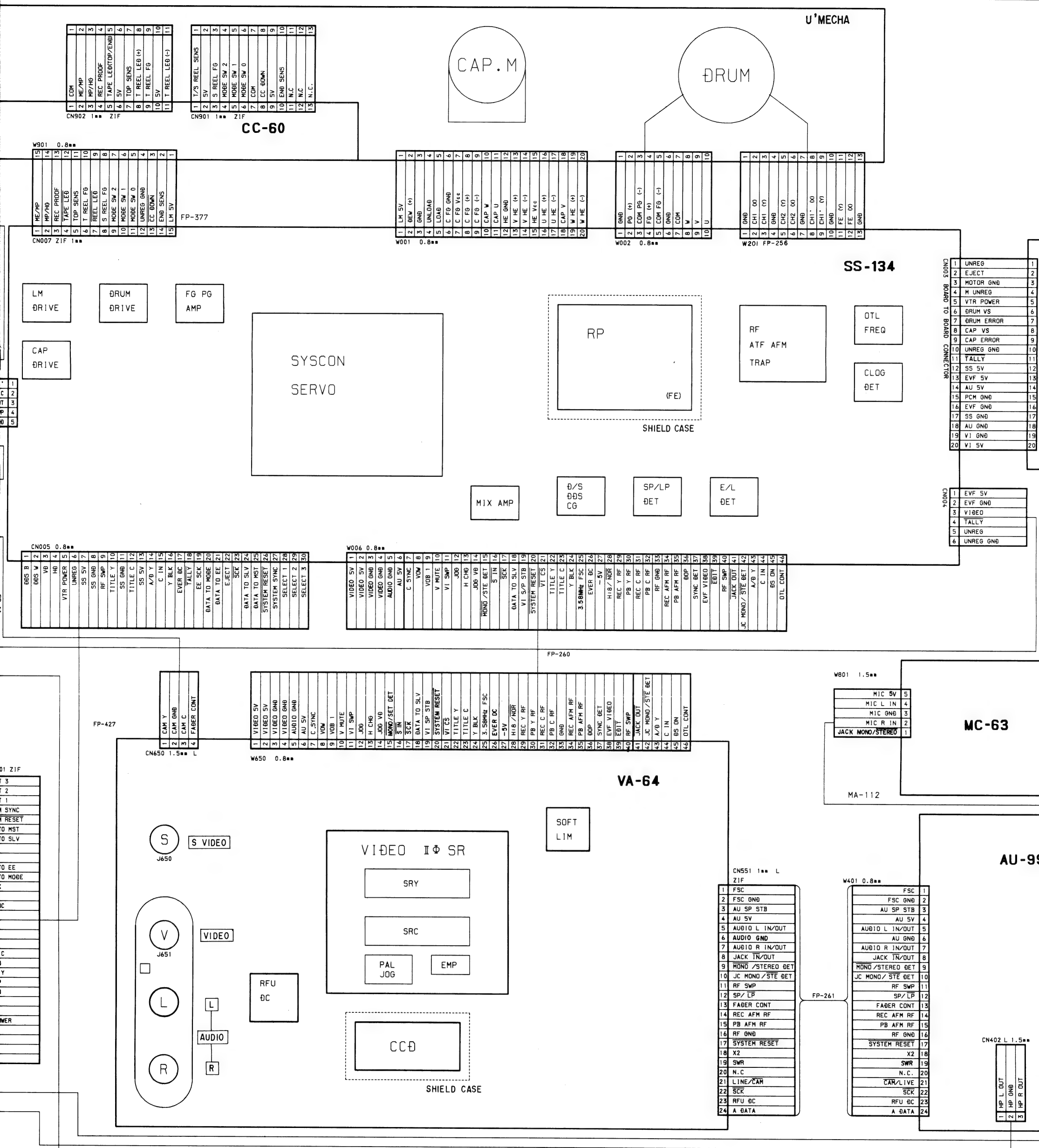
3-16. VIEWFINDER (B) BLOCK DIAGRAM



SECTION 4 PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

4-1. FRAME SCHEMATIC DIAGRAM





4-2. PRINTED WIRING BOARDS

THIS NOTE IS COMMON FOR ALL PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS. (In addition to this, the necessary notes are given for each board.)

- For printed wiring boards.
 - : Through hole.
 - : Pattern from the side which is indicated by the number.
 - : Pattern of the rear side.*

- For schematic diagram.
 - Caution when replacing chip parts. New parts must be attached after repair. Be careful not to heat the minus side of the chip because it is damaged by the heat.
 - All resistors are in ohms, 1/10W or less. kΩ: 1000Ω, MΩ: 1000kΩ.

- All capacitors are in μF unless otherwise noted. 50V or less are not indicated except for electrolytic capacitors.
- All variable and adjustable resistors are in ohms unless otherwise noted.
- : nonflammable resistor.
- : fusible resistor.
- : panel designation.
- △ : internal component.
- : adjustment for repair.*
- : B + Line *
- Circled numbers refer to waveforms.
- ➔ : IN/OUT direction of B (+, -).

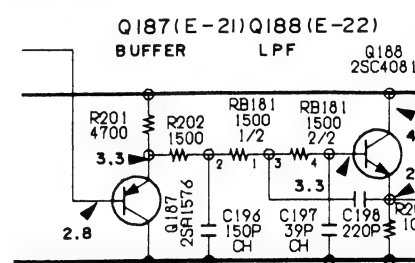
Note: The components identified by a line with mark are critical. Replace only with part number.

When indicating parts by reference number, please include the board name.

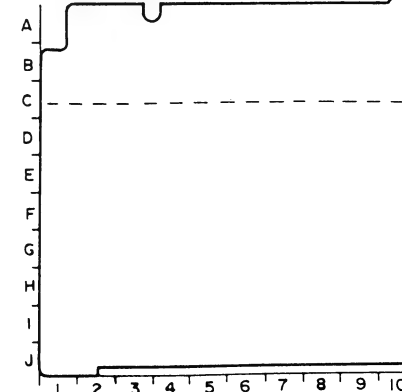
* Indicated by the color red.

[SEMICONDUCTOR LOCATION]

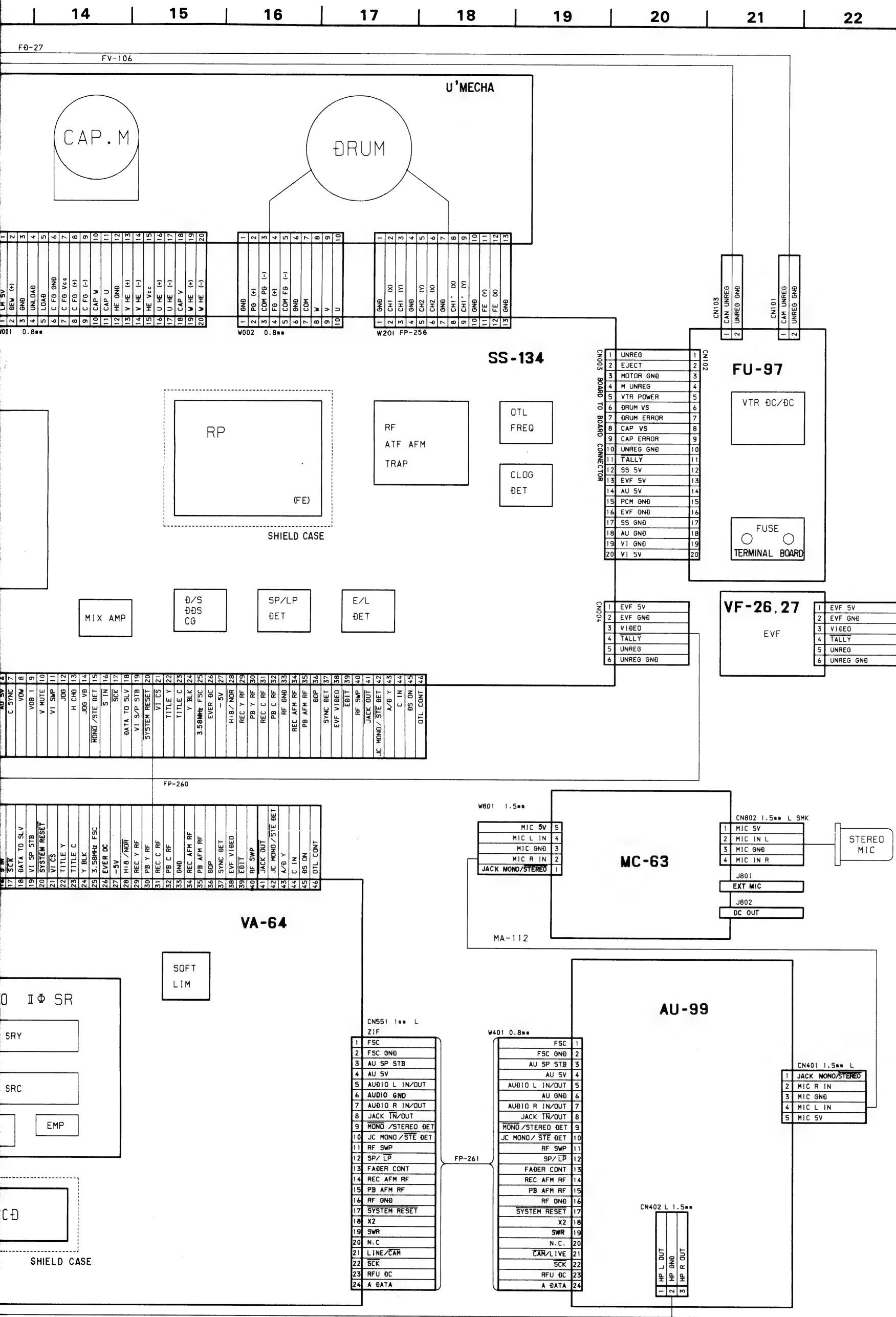
In this service manual, the mounted location of the semiconductor components (IC, transistor, diodes) are indicated by the reference number. This enables to find the location on the printed wiring board for servicing.



(COMPONENT SIDE)





[Semiconductor for Correction List Display]
Part code and part name of the semiconductor component mounted on the printed wiring board is described in the space of each component. When ordering parts.



THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.
(In addition to this, the necessary note is printed in each block.)

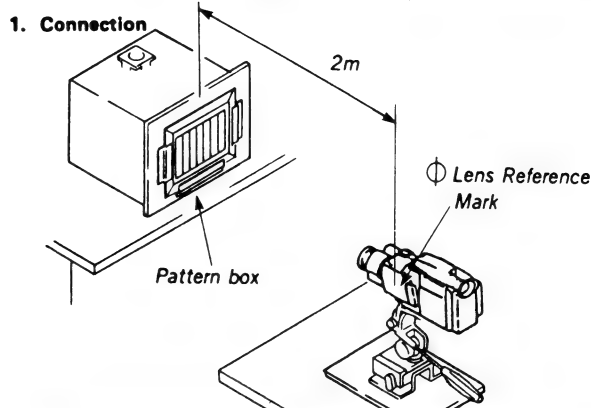
- For printed wiring boards.
 - : Through hole.
 - : Pattern from the side which enables seeing.
 - : Pattern of the rear side. *
- For schematic diagram.
 - Caution when replacing chip parts.
New parts must be attached after removal of chip.
Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
 - All resistors are in ohms, 1/10W or 1/16W unless otherwise noted.
kΩ: 1000Ω, MΩ: 1000kΩ.
 - All capacitors are in μF unless otherwise noted. pF: μμF.
50V or less are not indicated except for electrolytics and tantalums.
 - All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
 - : nonflammable resistor.
 - : fusible resistor.
 - : panel designation.
 - △ : internal component.
 - : adjustment for repair. *
 - : B + Line *
 - Circled numbers refer to waveforms. *
 - ↔ : IN/OUT direction of B (+, -) line. *

Note: The components identified by mark  or dotted line with mark  are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

* Indicated by the color red.

- For voltage and waveforms. (CAM REC mode)
- Voltage and waveform measuring conditions: *
 - Sample object: Pattern box color bars. *
 - Voltage values: Relative to ground, measured with a DC digital multimeter (impedance 10M-ohm or more). *



- Adjust the zooming of camera and the tripod so that the output waveform of Fig. a and the picture of Fig. b can be obtain.

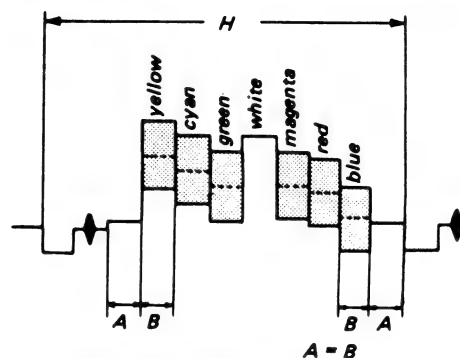


Fig. a Video output waveform.

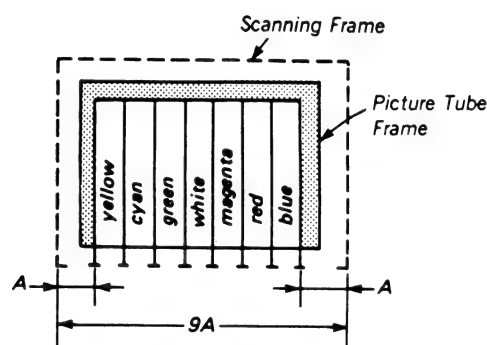
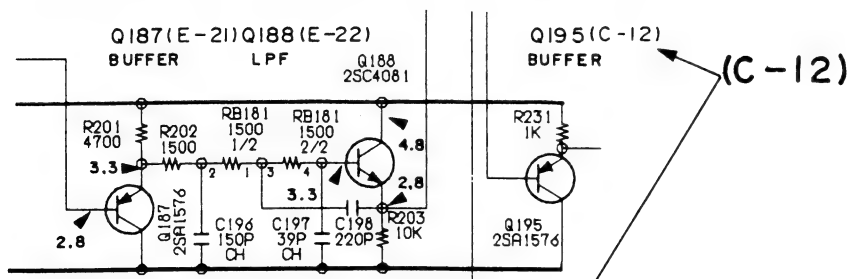


Fig. b Picture of TV monitor screen

- For voltage and waveforms. (REC/PB mode)
- Voltages are dc between ground and measurement points. *
- Readings are taken with a color-bar signal input. *
- Readings are taken with a digital multimeter (DC10MΩ). *
- Voltage variations may be noted due to normal production tolerances. *

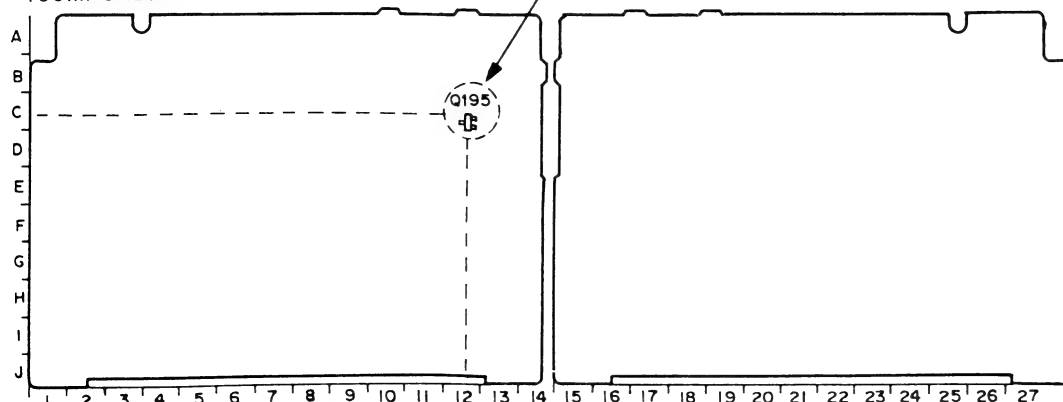
[SEMICONDUCTOR LOCATION]

In this service manual, the mounted locations of the semiconductors (IC, transistor, diodes) are indicated as shown below. This enables to find the location on the board easily when servicing.



(COMPONENT SIDE)

(CONDUCTOR SIDE)



[Semiconductor for Correction List Display]

Part code and part name of the semiconductor for correction of the print board is described in the space of each print figure. Use this list when ordering parts.

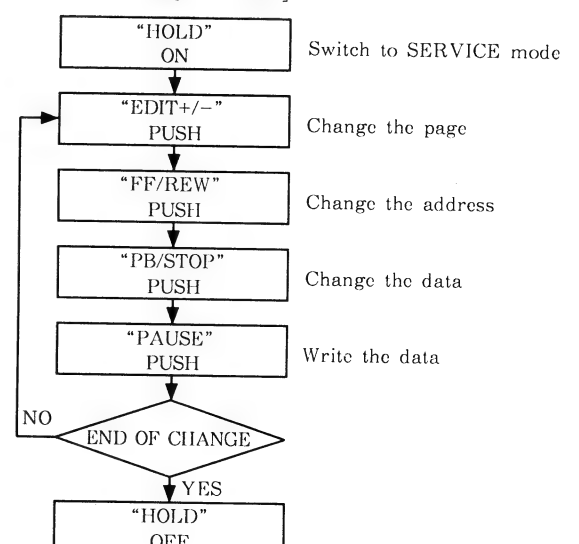
Precautions for replacement of CCD imager block.

- With a pair of IC101 (CCD imager) on the CD-53 complete board and IC001 (corrector ROM) on the DT-77 complete board, it is used a repair part of the CCD imager block.
Since corrector ROM IC is manufactured to match the CCD imager, replacement of a single unit of the CCD imager corrector ROM cannot be allowed.
- When both a CCD imager and the corrector ROM, replace both the CCD imager and the corrector ROM, when a corrector ROM is not mounted on the service set, install a corrector ROM which is supplied anew.
- IC101 (CCD imager) is not mounted on the CD-53 complete board to be supplied as a repair part, and IC001 (corrector ROM) is not mounted on the DT-77 complete board to be supplied as a repair part. When the respective boards are replaced, remove the respective ICs from the old boards and install them to the new once respectively.
- After the CCD imager block has been replaced, perform the entire adjustments of the camera section.
- CCD imager is structurally in case of being broken down by static electricity.
For this reason, take care to handle it as well as MOS IC. Moreover, care should be taken for dust not to be stuck on the light receiving section and for strong light not to get into there.

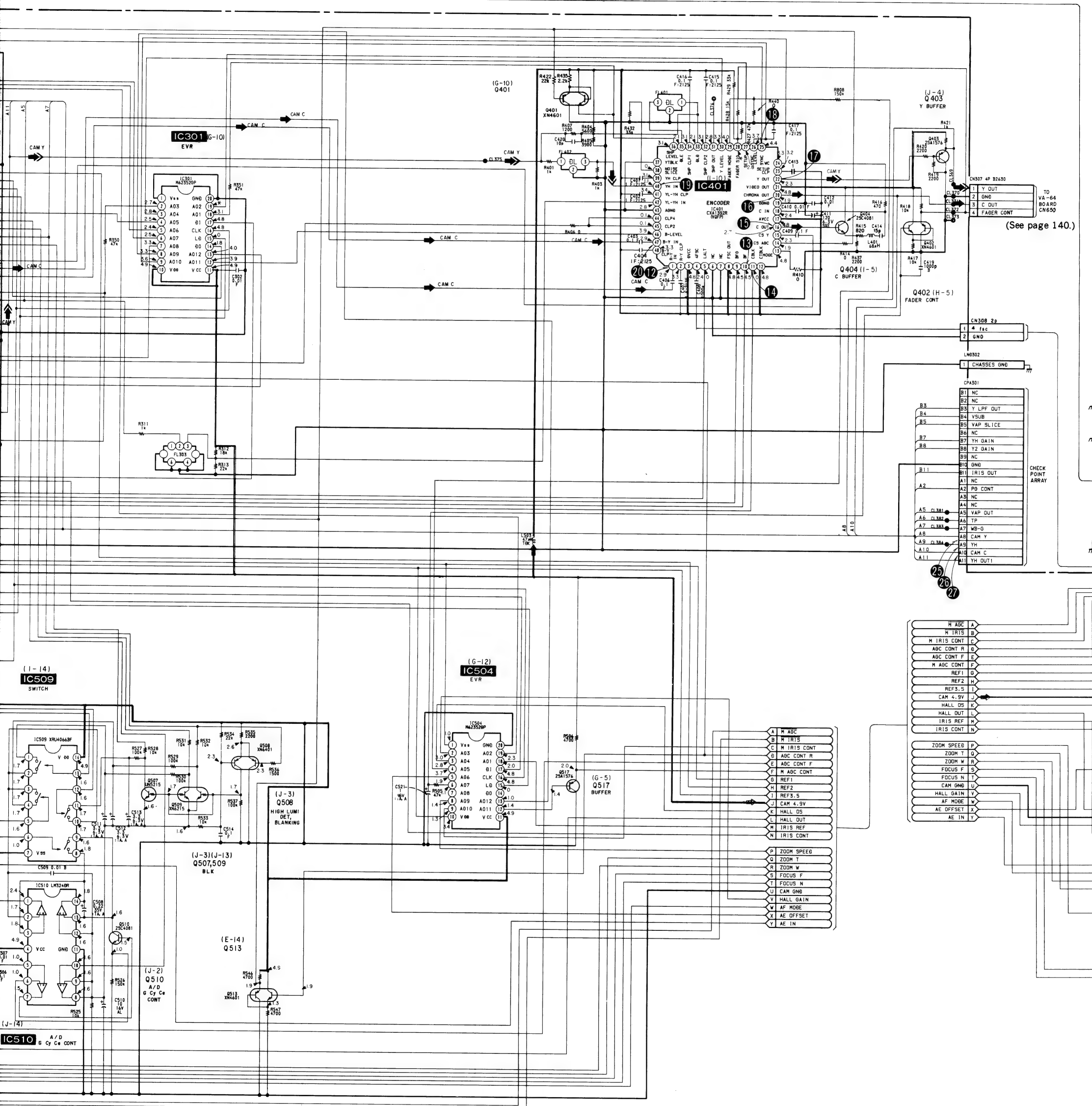
[To set the AEP, UK model to REC mode]

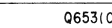
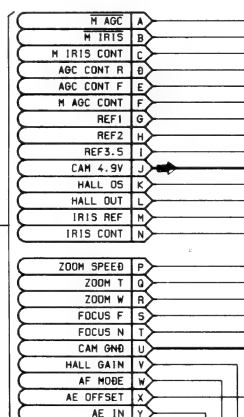
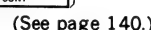
- Enter SERVICE mode with the adjustment remote control.
 - Set the data at address: 00 on page: 1 to 01 *1.
 - Set the data at address: 02 on page: D to 03 *1.
 - Turn the power of the set off.
 - Turn the power of the set on.
 - Make shorting once for S508 land (REC switch) of FK-47 board.
- After voltage measurement and adjustment, restore as follows:
- Set the data at address: 00 on page: 1 to 01 *1.
 - Set the data at address: 02 on page: D to 02 *1.
 - Turn the power of the set off.

*1 [To change the data]

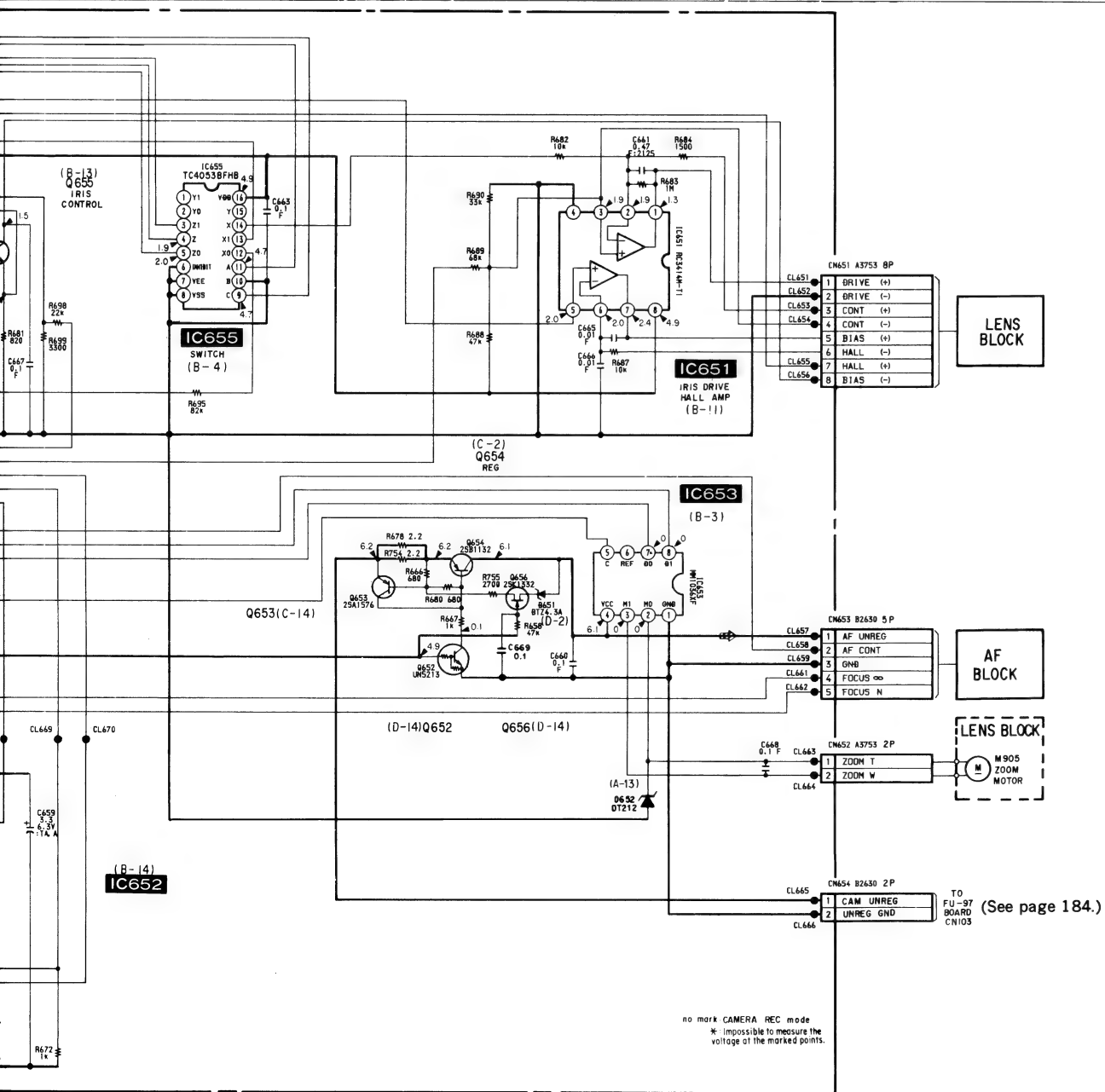
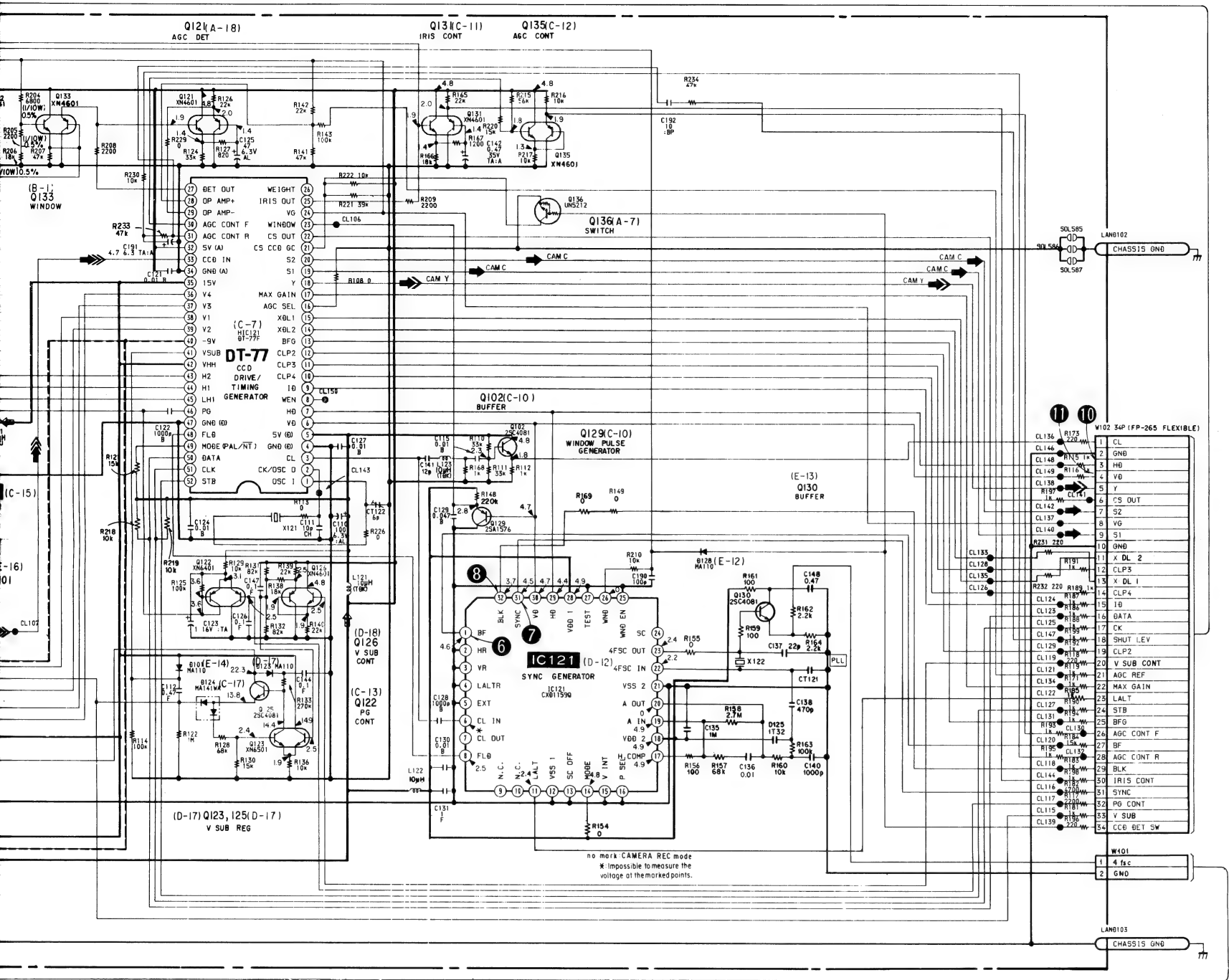








DT-77 BOARD is replaced as a block.



Be sure to always read "Precautions for replacement of CCD imager block" in page 119 when replacing the CD-53 board, complete, DT-77 board, complete and CCD imager block (IC101 on the CD-53 board and IC001 on the DT-77 board).

• Signal path

	VIDEO Signal		
	CHROMA	Y	Y/CHROMA
REC	→	→	→

< DIODE >

D501 8-719-404-46 MA110
D502 8-719-404-46 MA110
D503 8-719-404-46 MA110
D504 8-719-404-46 MA110
D651 8-719-976-90 DTZ4.3A

D651 8-719-976-91 DTZ4.3B
D652 8-719-977-34 DTZ12

< IC >

IC301 8-759-635-27 M62352GP
IC401 8-752-038-XX CXA1392R
IC501 8-759-038-85 MC68HC11E9FU-SC400226
IC504 8-759-635-27 M62352GP
IC508 8-759-937-56 S-8054ALB-LM-S

IC509 8-759-509-05 XR4066BF
IC510 8-759-998-96 LM324D
IC651 8-759-981-82 RC3414M
IC652 8-759-998-96 LM324D
IC653 8-759-500-11 MM1036XFF

IC655 8-759-208-11 TC4053BFHB
IC656 8-759-998-96 LM324D

< TRANSISTOR >

Q301 8-729-905-23 2SA1576-R
Q302 8-729-905-23 2SA1576-R
Q303 8-729-402-84 XN4601
Q401 8-729-402-84 XN4601
Q402 8-729-402-84 XN4601

Q403 8-729-905-23 2SA1576-R
Q404 8-729-905-35 2SC4081-R
Q504 8-729-403-10 XN6215
Q505 8-729-403-10 XN6215
Q506 8-729-925-77 1MH6

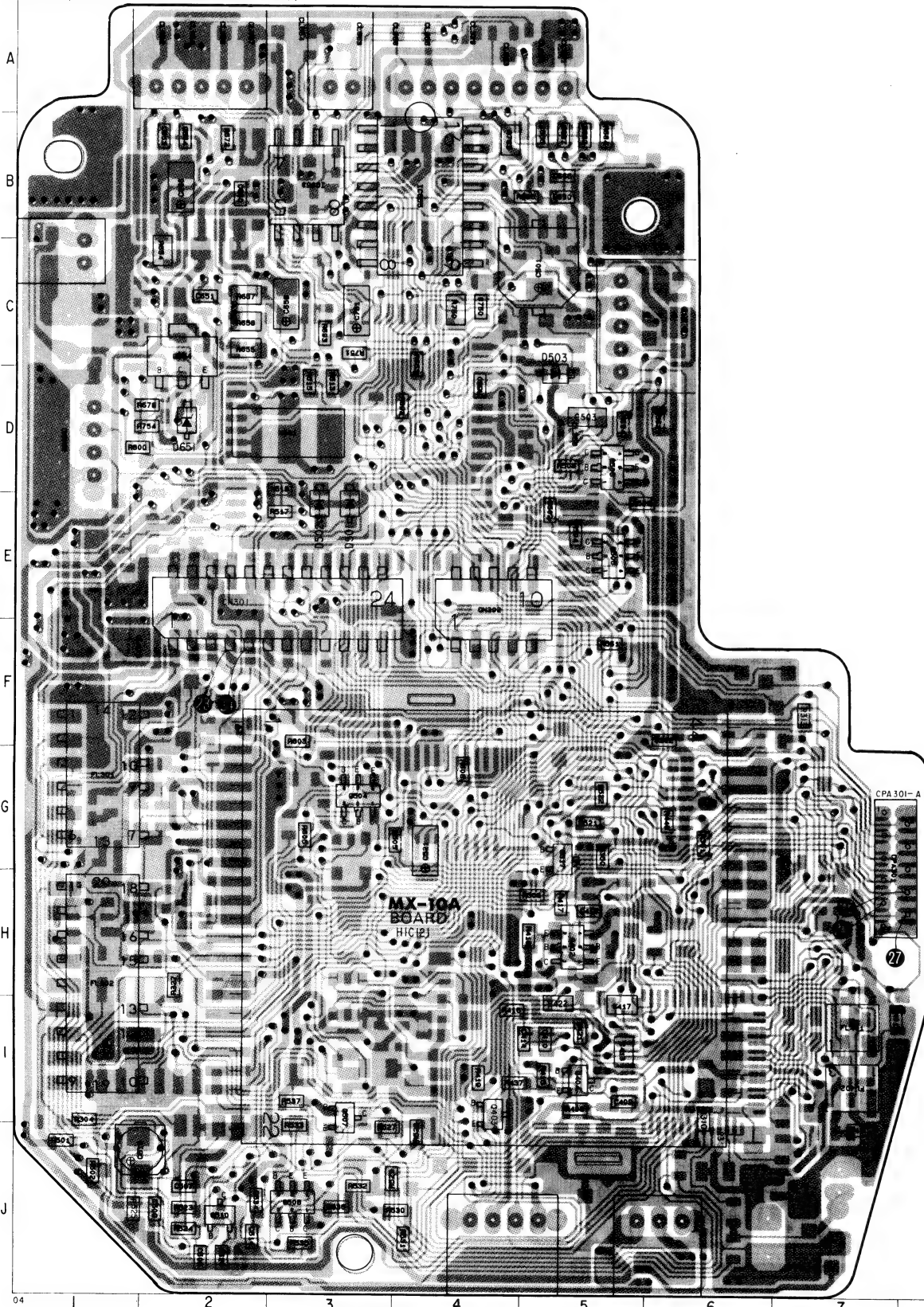
Q507 8-729-420-50 UN5215
Q508 8-729-402-78 XN6401
Q509 8-729-403-10 XN6215
Q510 8-729-905-35 2SC4081-R
Q513 8-729-402-84 XN4601

Q516 8-729-905-35 2SC4081-R
Q517 8-729-905-23 2SA1576-R
Q652 8-729-402-42 UN5213
Q653 8-729-905-23 2SA1576-R
Q654 8-729-106-60 2SB1115A

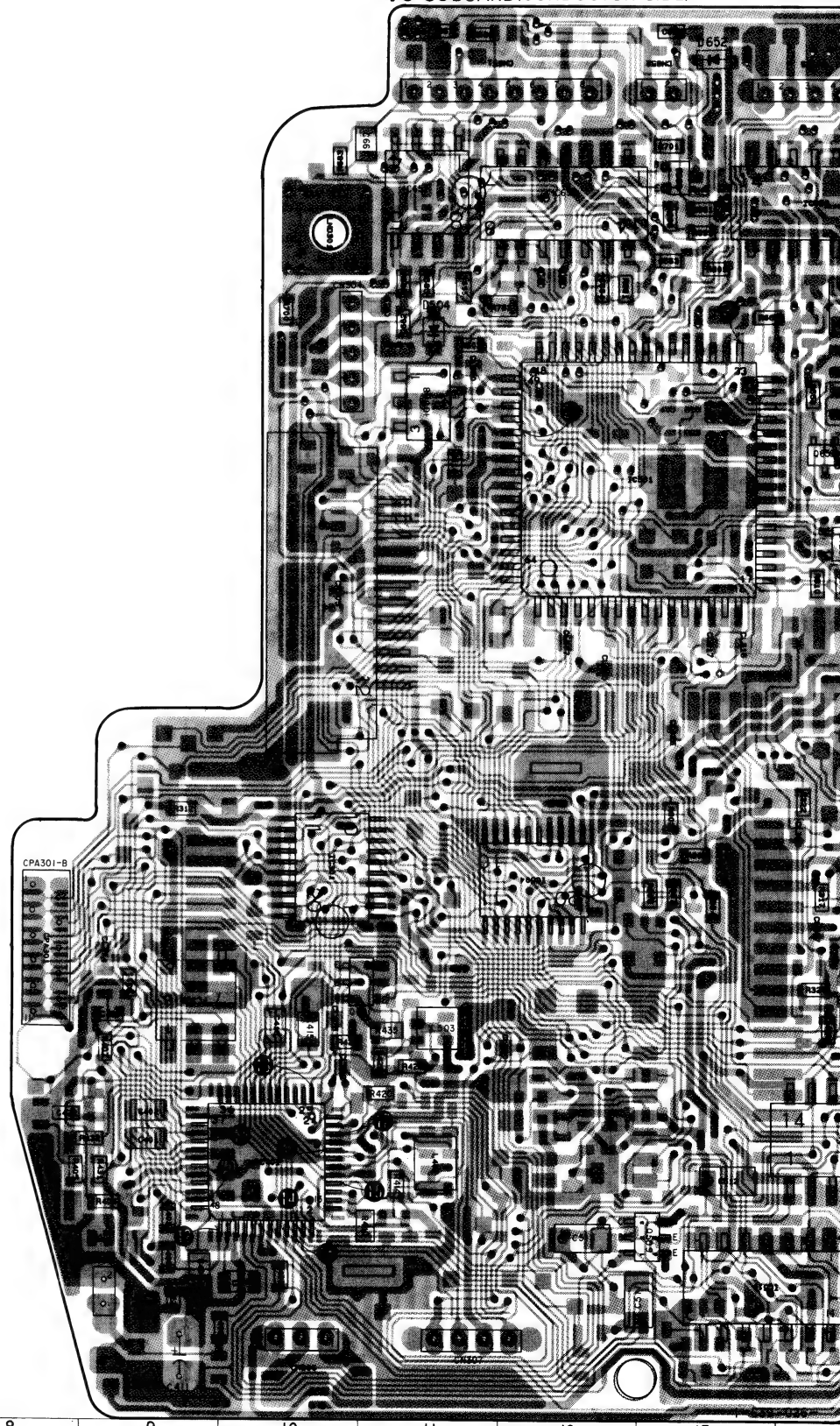
Q655 8-729-905-35 2SC4081-R
Q656 8-729-821-88 2SK1332-3

VC-86 (CAMERA PROCESS, ZOOM/FOCUS), CD-53 (CCD IMAGER) PRINTED WIRING BOARDS
—Ref. No. VC-86, CD-53 BOARDS: 1000 series—

VC-86 BOARD (COMPONENT SIDE)



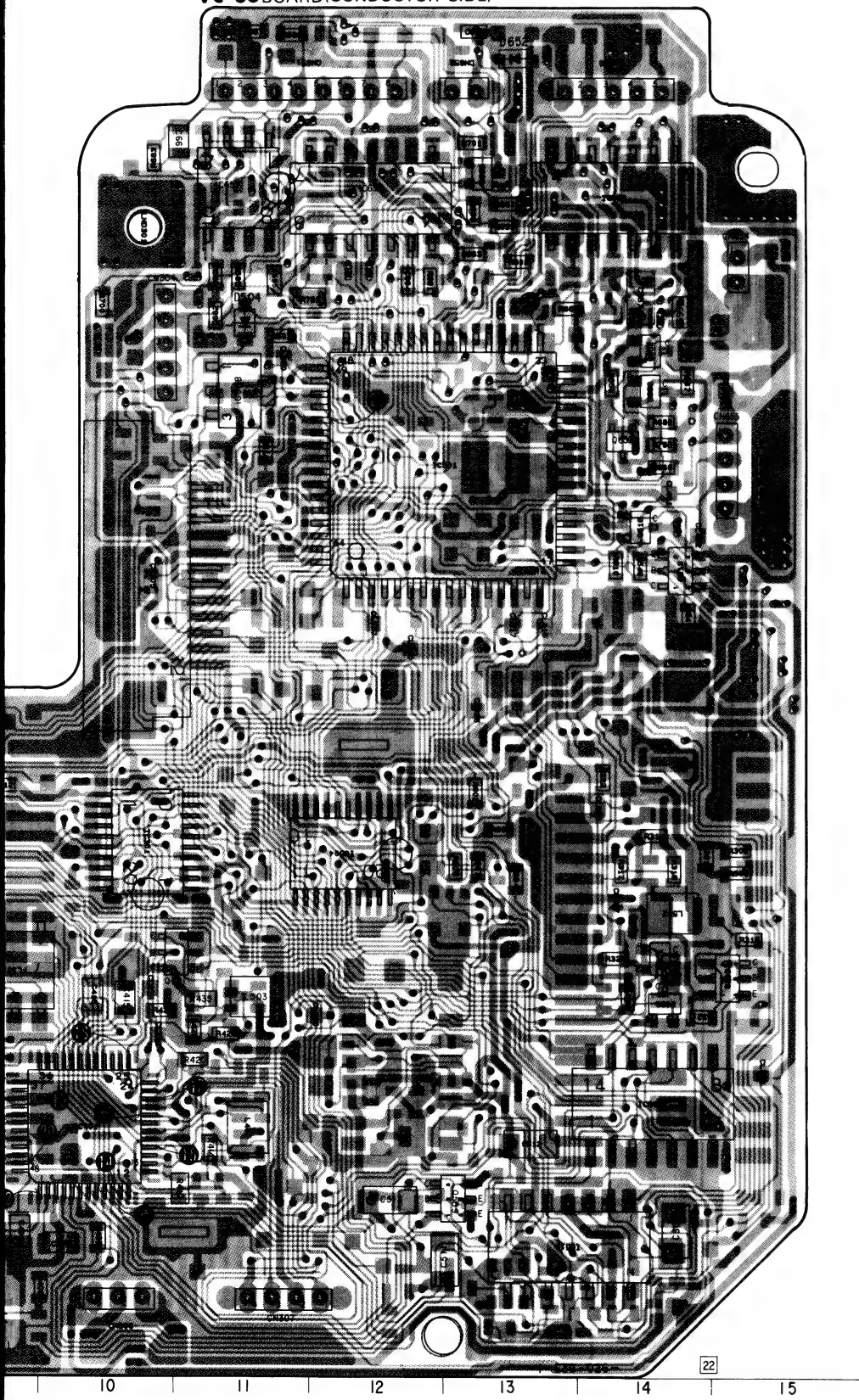
VC-86 BOARD (CONDUCTOR SIDE)



719-404-46 MA110
 719-404-46 MA110
 719-404-46 MA110
 719-404-46 MA110
 719-976-90 DTZ4.3A
 719-976-91 DTZ4.3B
 719-977-34 DTZ12
 759-635-27 M62352GP
 752-038-XX CXA1392R
 759-038-85 MC68HC11E9FU-SC400226
 759-635-27 M62352GP
 759-937-56 S-8054ALB-LM-S
 759-509-05 XRU4066BF
 759-998-96 LM324D
 759-981-82 RC3414M
 759-998-96 LM324D
 759-500-11 MM1036XFF
 759-208-11 TC4053BFH8
 759-998-96 LM324D

< TRANSISTOR >
 Q301 8-729-905-23 2SA1576-R
 Q302 8-729-905-23 2SA1576-R
 Q303 8-729-402-84 XN4601
 Q401 8-729-402-84 XN4601
 Q402 8-729-402-84 XN4601
 Q403 8-729-905-23 2SA1576-R
 Q404 8-729-905-35 2SC4081-R
 Q504 8-729-403-10 XN6215
 Q505 8-729-403-10 XN6215
 Q506 8-729-925-77 IMH6
 Q507 8-729-420-50 UN5215
 Q508 8-729-402-78 XN6401
 Q509 8-729-403-10 XN6215
 Q510 8-729-905-35 2SC4081-R
 Q513 8-729-402-84 XN4601
 Q516 8-729-905-35 2SC4081-R
 Q517 8-729-905-23 2SA1576-R
 Q652 8-729-402-42 UN5213
 Q653 8-729-905-23 2SA1576-R
 Q654 8-729-106-60 2SB1115A
 Q655 8-729-905-35 2SC4081-R
 Q656 8-729-821-88 2SK1332-3

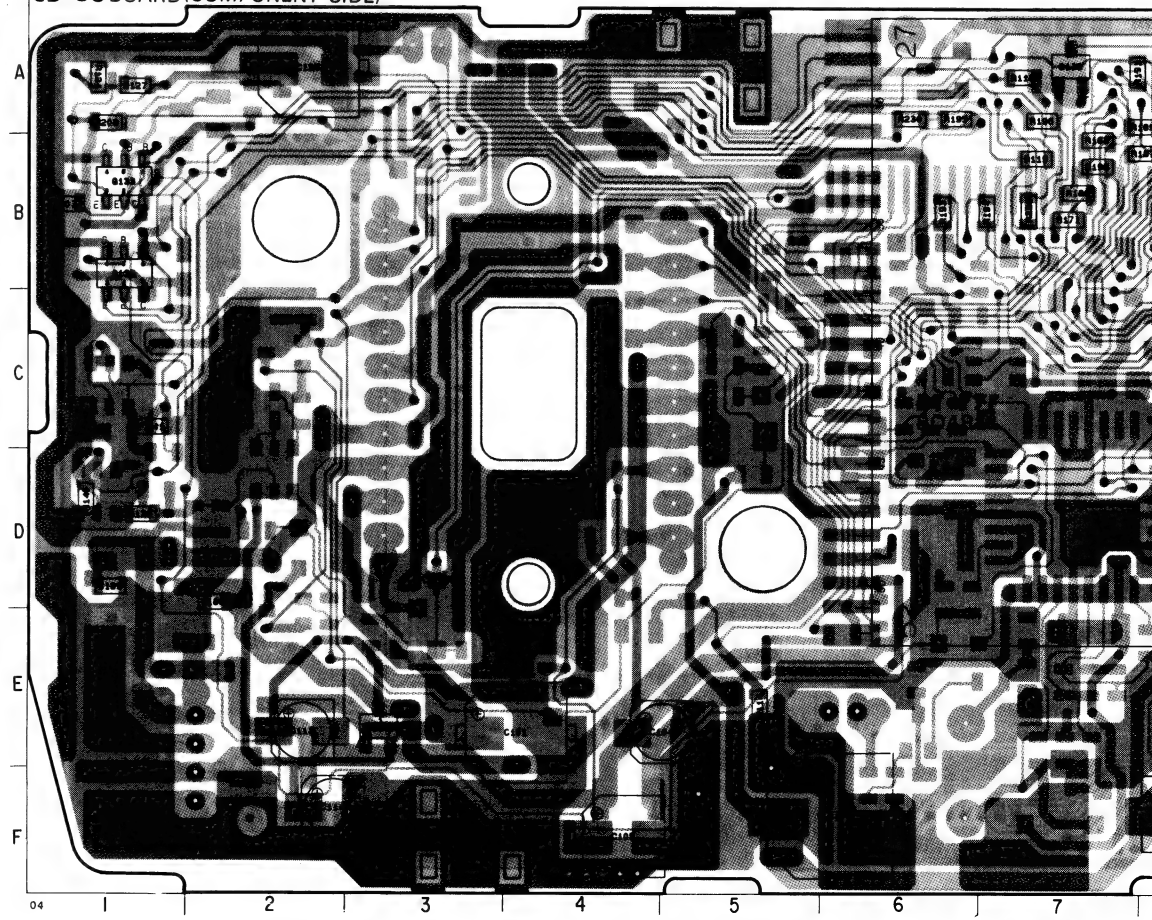
VC-86 BOARD(CONDUCTOR SIDE)

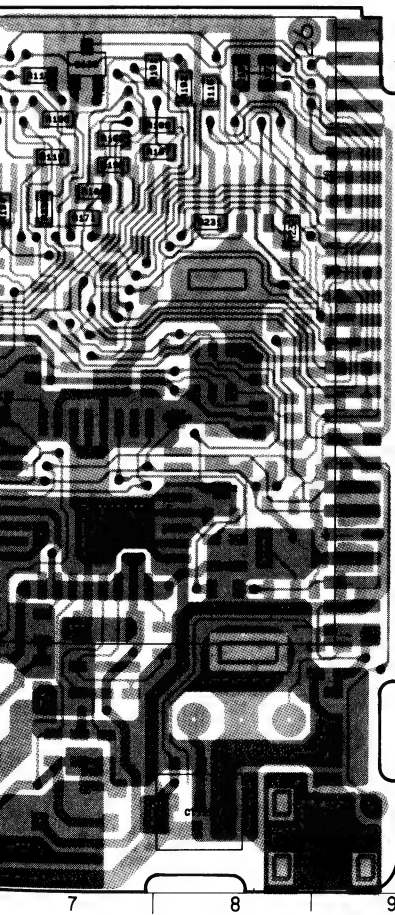


< DIODE >
 D101 8-719-404-46 MA110
 D102 8-719-404-52 MA143
 D122 8-719-404-32 MA141WA
 D123 8-719-404-46 MA110
 D124 8-719-404-32 MA141WA
 D125 8-719-949-46 1T32
 D128 8-719-404-46 MA110
 < IC >
 IC121 8-752-326-08 CXD1159Q

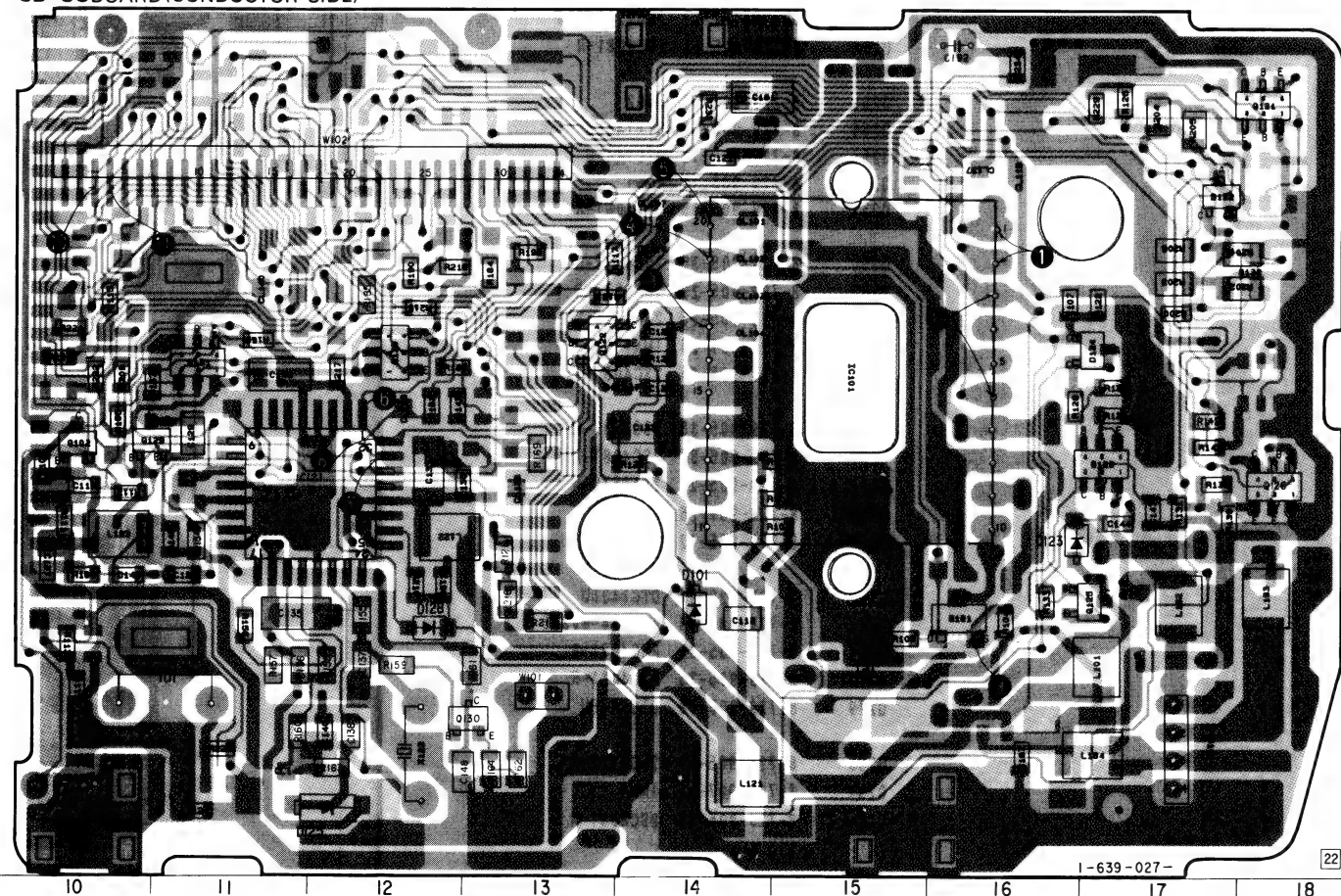
< TRANSISTOR >
 Q101 8-765-420-02 2SK300-3
 Q102 8-729-905-35 2SC4081-R
 Q121 8-729-402-84 XN4601
 Q122 8-729-402-78 XN6401
 Q123 8-729-402-19 XN6501
 Q125 8-729-905-35 2SC4081-R
 Q126 8-729-402-84 XN4601
 Q129 8-729-905-23 2SA1576-R
 Q130 8-729-905-35 2SC4081-R
 Q131 8-729-402-84 XN4601
 Q132 8-729-402-84 XN4601
 Q133 8-729-402-84 XN4601
 Q135 8-729-402-84 XN4601
 Q136 8-729-402-45 UN5212

CD-53 BOARD (COMPONENT SIDE)





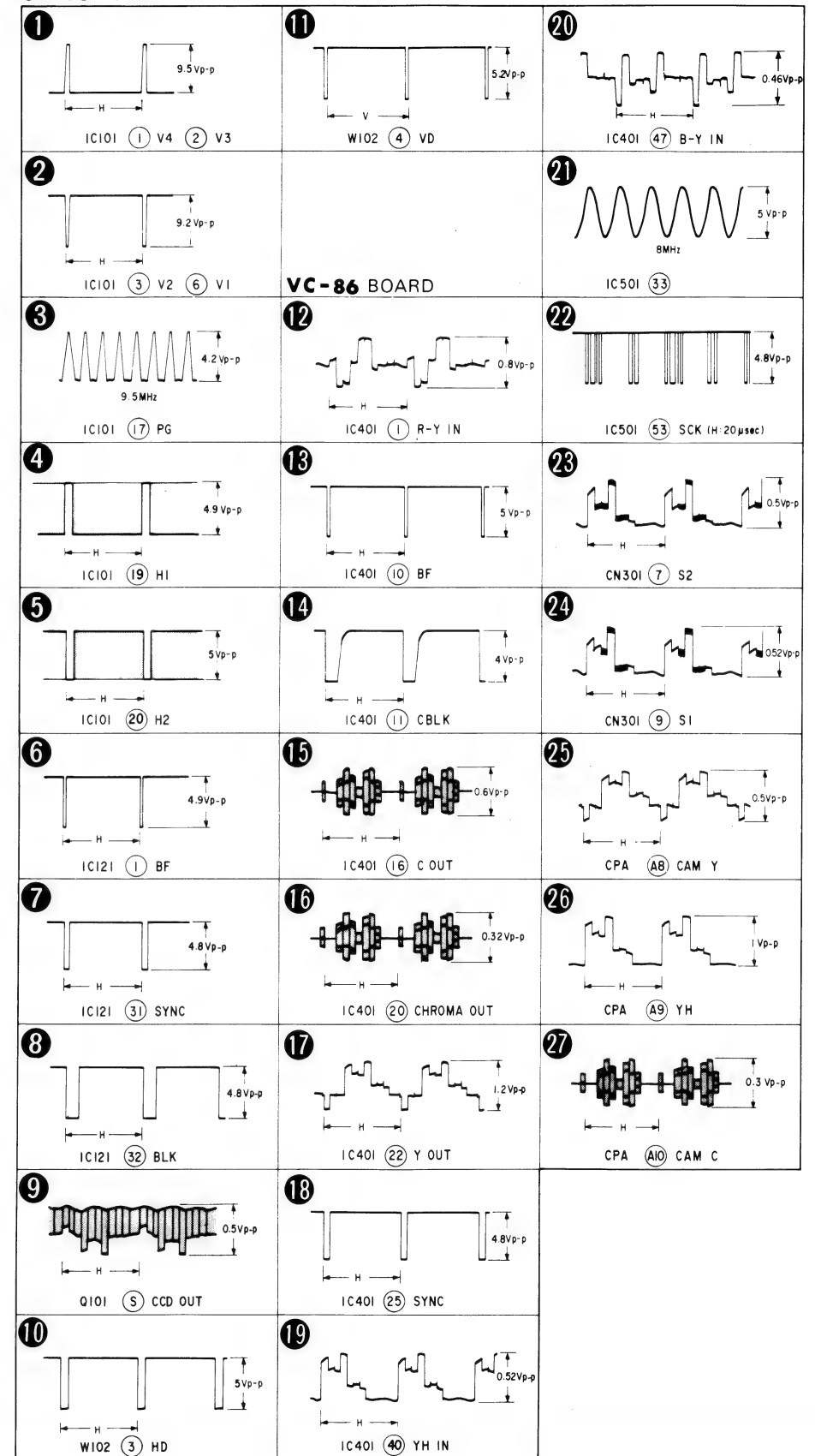
CD-53 BOARD (CONDUCTOR SIDE)



1-639-027-

22

CD-53 BOARD



SS-134 (R/P AMP, SERVO, SYSTEM CONTROL) PRINTED WIRING BOARD
—Ref. No. SS-134 BOARD: 2000 series—

< DIODE >

D001	8-719-941-86	DAN202U
D002	8-719-404-46	MA110
D101	8-719-949-46	1T32
D202	8-719-941-86	DAN202U
D203	8-719-941-86	DAN202U

D205	8-719-404-46	MA110
D208	8-719-941-86	DAN202U
D210	8-719-941-86	DAN202U
D211	8-719-941-86	DAN202U

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IC001	8-752-830-81	CXP80116-837Q
IC003	8-759-998-98	LM358D
IC004	8-759-148-05	CXA8010M

IC005	8-759-823-65	MCD002AM
IC006	8-759-990-55	CXA8006M
IC007	8-759-008-95	MC140288F
IC008	8-759-748-72	BR93C46F
IC101	8-759-970-80	MB673198U

IC102	8-759-153-41	uPD6451AGT-611-E1
IC104	8-759-234-20	TC7S08F
IC150	8-752-035-48	CXA1204Q
IC201	8-759-012-00	MC10H116M
IC202	8-759-998-92	LM393D

IC204	8-759-998-32	CXD2107M
IC205	8-759-148-49	CXA1443N

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Q001	8-729-907-00	DTC114EU
Q002	8-729-905-12	DTA144EU
Q003	8-729-905-18	DTC144EU
Q004	8-729-820-47	2SB1202FAT
Q005	8-729-905-35	2SC4081-R

Q007	8-729-905-35	2SC4081-R
Q008	8-729-905-35	2SC4081-R
Q009	8-729-905-35	2SC4081-R
Q010	8-729-907-03	FMG5
Q011	8-729-905-18	DTC144EU

Q012	8-729-905-18	DTC144EU
Q014	8-729-822-48	FC101
Q017	8-729-907-03	FMG5
Q018	8-729-905-18	DTC144EU
Q023	8-729-921-08	DTC144TU

Q150	8-729-905-23	2SA1576-R
Q151	8-729-905-18	DTC144EU
Q152	8-729-905-35	2SC4081-R
Q153	8-729-905-23	2SA1576-R
Q202	8-729-905-35	2SC4081-R

Q203	8-729-905-35	2SC4081-R
Q213	8-729-216-22	2SA1162G
Q214	8-729-119-76	2SA1175-HFE
Q215	8-729-216-22	2SA1162G
Q217	8-729-102-07	2SC2223-F13

Q218	8-729-905-35	2SC4081-R
Q219	8-729-905-35	2SC4081-R
Q221	8-729-905-35	2SC4081-R
Q222	8-729-907-00	DTC114EU
Q223	8-729-905-35	2SC4081-R

Q224	8-729-904-07	FMG2
Q225	8-729-905-45	DTA143EU
Q227	8-729-905-35	2SC4081-R
Q229	8-729-141-48	2SB624-BV345
Q230	8-729-141-48	2SB624-BV345

Q231	8-729-905-18	DTC144EU
Q232	8-729-905-18	DTC144EU
Q233	8-729-102-07	2SC2223-F13
Q234	8-729-102-07	2SC2223-F13
Q238	8-729-117-31	2SC4177-L5

Q239	8-729-905-18	DTC144EU
Q240	8-729-905-18	DTC144EU
Q242	8-729-117-31	2SC4177-L5
Q243	8-729-905-18	DTC144EU
Q244	8-729-140-63	2SA1611-M5

Q245	8-729-117-31	2SC4177-L5
Q246	8-729-905-18	DTC144EU
Q247	8-729-905-35	2SC4081-R
Q248	8-729-903-10	FMW1
Q249	8-729-905-18	DTC144EU

Q250	8-729-905-12	DTA144EU
Q251	8-729-905-35	2SC4081-R
Q252	8-729-102-07	2SC2223-F13
Q254	8-729-905-35	2SC4081-R

Q255	8-729-904-07	FMG2
Q256	8-729-905-12	DTA144EU
Q257	8-729-905-18	DTC144EU
Q258	8-729-903-10	FMW1
Q259	8-729-905-35	2SC4081-R

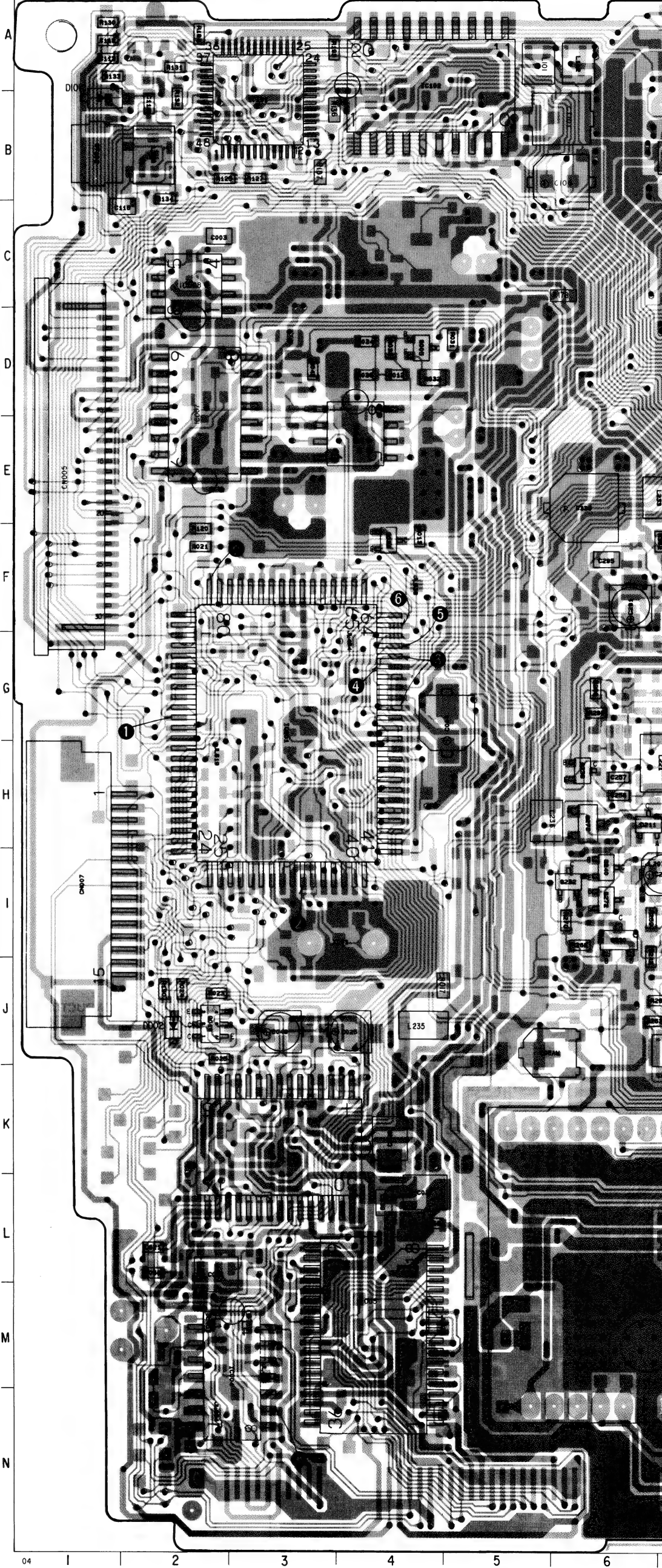
Q260	8-729-905-35	2SC4081-R
Q261	8-729-905-23	2SA1576-R
Q262	8-729-905-23	2SA1576-R
Q263	8-729-907-26	IMX1
Q265	8-729-905-35	2SC4081-R

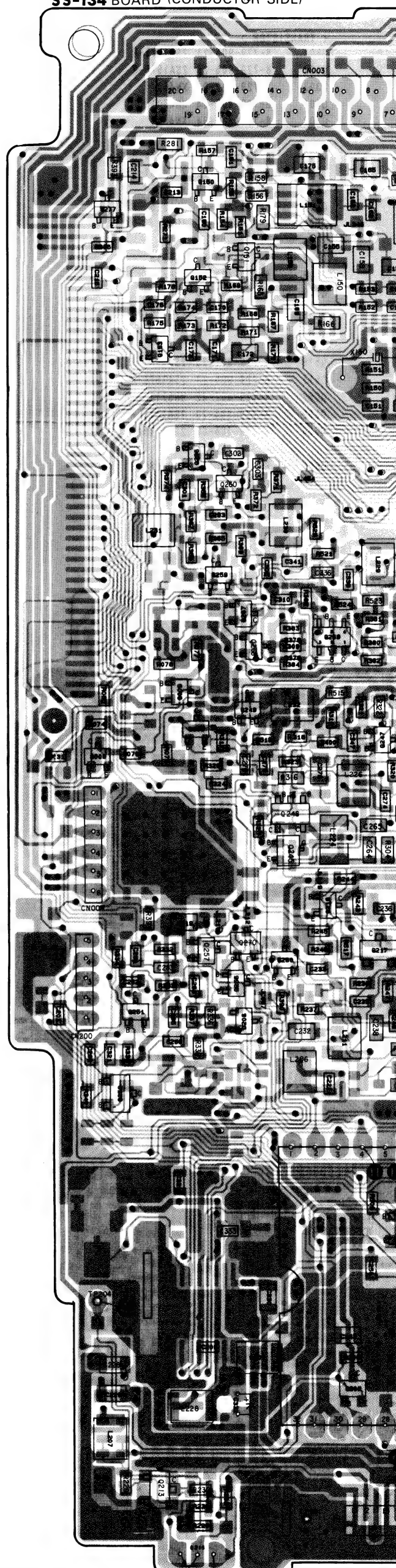
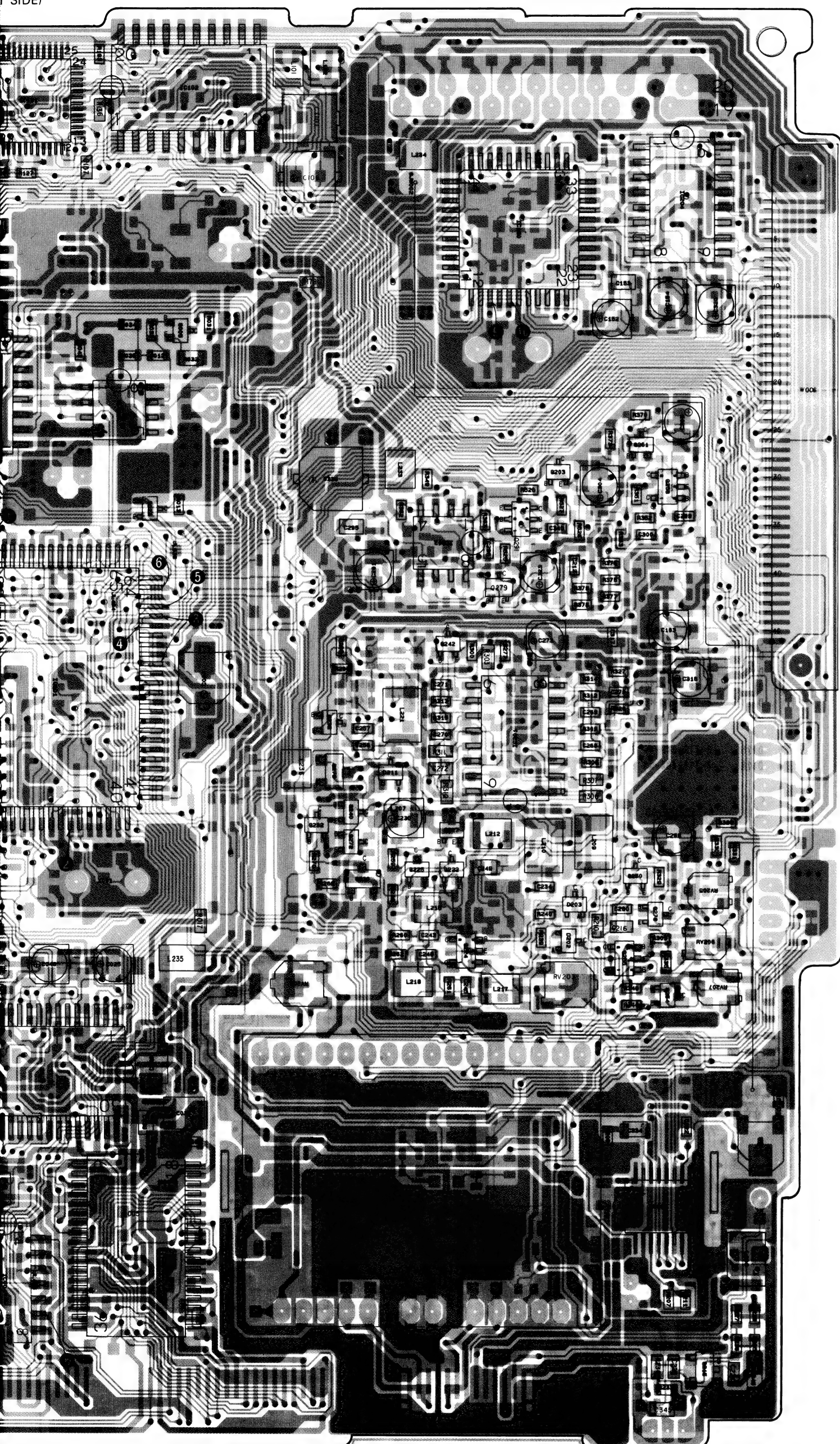
Q266	8-729-905-35	2SC4081-R
Q267	8-729-905-35	2SC4081-R
Q268	8-729-905-23	2SA1576-R
Q269	8-729-907-26	IMX1
Q270	8-729-905-12	DTA144EU

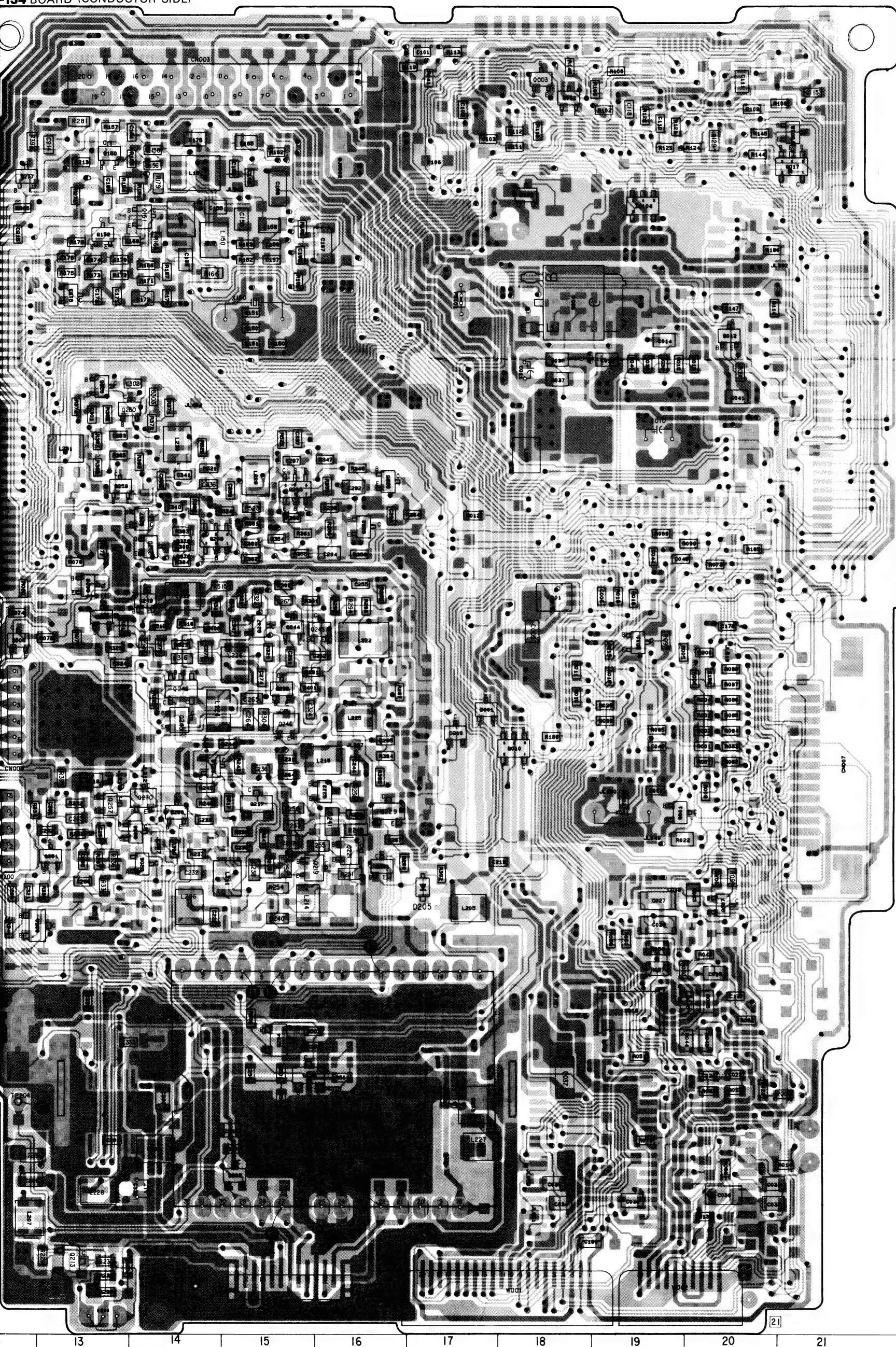
Q272	8-729-922-94	DTC143TU
Q273	8-729-141-48	2SB624-BV345
Q277	8-729-905-35	2SC4081-R
Q278	8-729-905-35	2SC4081-R
Q279	8-729-905-18	DTC144EU

Q280	8-729-905-35	2SC4081-R
Q291	8-729-907-26	IMX1
Q295	8-729-905-35	2SC4081-R

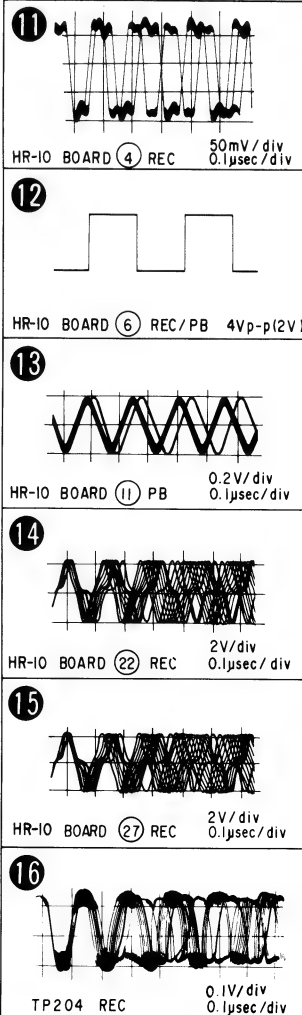
SS-134 BOARD (COMPONENT SIDE)

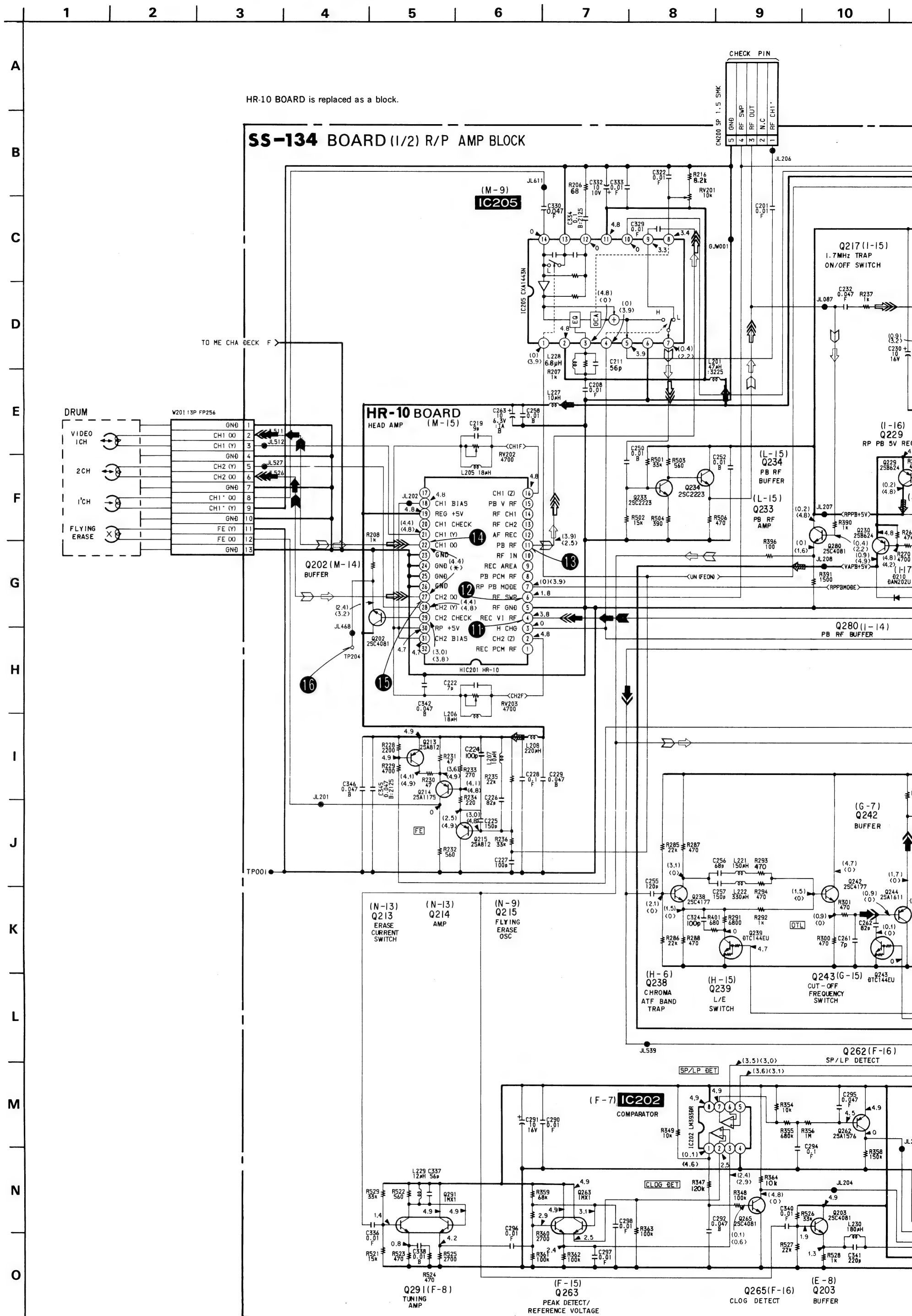


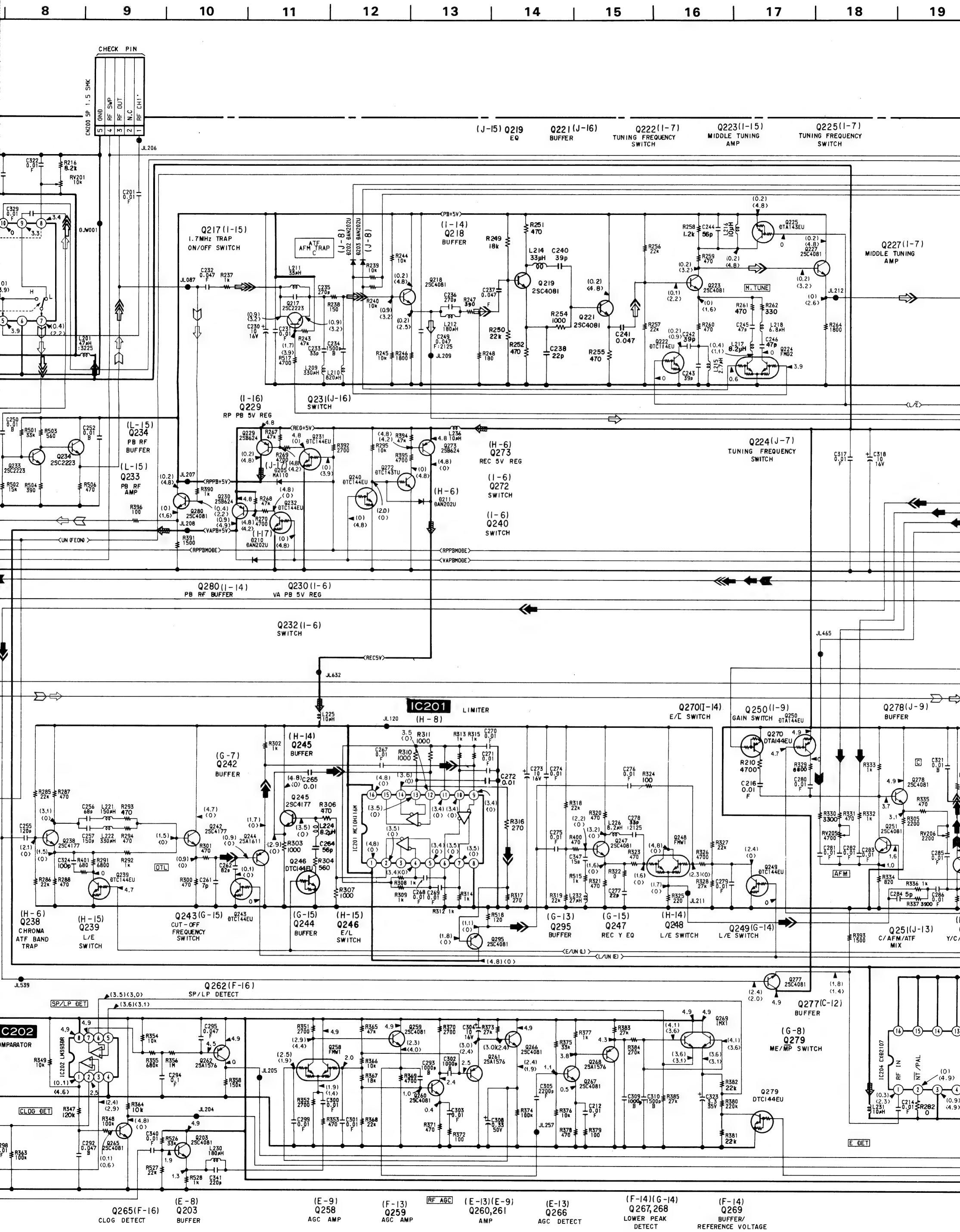


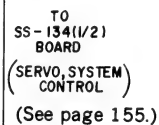





SS-134 BOARD (RP BLOCK)



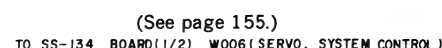


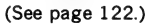




	REC	REC/PB	PB
Ref.signal			

—Ref. No. VA-64 BOARD: 3000 series—





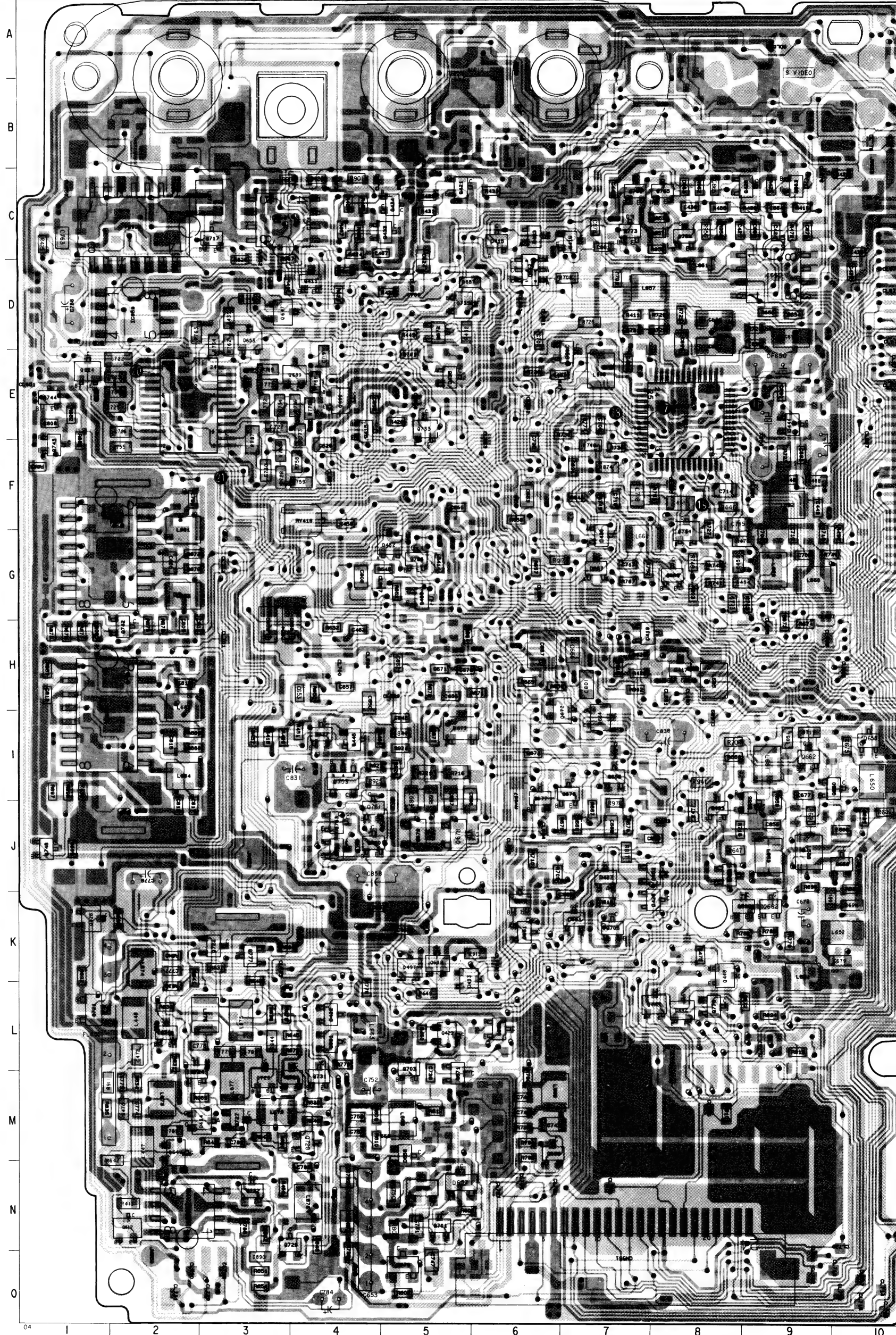
- **Signal path**

	VIDEO Signal			AUDIO Signal
	CHROMA	Y	Y/CHROMA	
REC	➡	➡➡	➡➡➡	➡
PB	➡	➡➡	➡➡➡	➡

Q427	8-729-905-35	2SC4081-R	Q442	8-729-905-18	DTC144EU	Q494	8-729-905-35	2SC4081-R	Q661	8-729-905-35	2SC4081-R	Q676
Q428	8-729-905-XX	DTC114TU	Q443	8-729-905-18	DTC144EU	Q497	8-729-905-18	DTC144EU	Q662	8-729-905-35	2SC4081-R	Q677
Q429	8-729-905-35	2SC4081-R	Q444	8-729-905-35	2SC4081-R	Q498	8-729-905-18	DTC144EU	Q663	8-729-905-23	2SA1576-R	Q678
Q430	8-729-905-18	DTC144EU	Q446	8-729-905-35	2SC4081-R	Q643	8-729-905-23	2SA1576-R	Q664	8-729-905-18	DTC144EU	Q679
Q431	8-729-905-23	2SA1576-R	Q447	8-729-921-58	DTA144TU	Q645	8-729-905-18	DTC144EU	Q665	8-729-905-35	2SC4081-R	Q680
Q432	8-729-905-23	2SA1576-R	Q448	8-729-905-18	DTC144EU	Q647	8-729-905-18	DTC144EU	Q666	8-729-905-35	2SC4081-R	Q681
Q433	8-729-905-35	2SC4081-R	Q452	8-729-905-18	DTC144EU	Q648	8-729-905-12	DTA144EU	Q667	8-729-905-18	DTC144EU	Q682
Q434	8-729-905-23	2SA1576-R	Q456	8-729-905-18	DTC144EU	Q649	8-729-905-18	DTC144EU	Q668	8-729-905-18	DTC144EU	Q683
Q439	8-729-905-12	DTA144EU	Q491	8-729-905-96	DTA114TU	Q651	8-729-905-23	2SA1576-R	Q669	8-729-905-18	DTC144EU	Q684
Q440	8-729-905-35	2SC4081-R	Q493	8-729-905-12	DTA144EU	Q655	8-729-905-12	DTA144EU	Q670	8-729-202-38	2SC3326N	Q685
						Q656	8-729-905-23	2SA1576-R	Q671	8-729-905-18	DTC144EU	Q686
						Q657	8-729-905-35	2SC4081-R	Q672	8-729-905-18	DTC144EU	Q687
						Q658	8-729-924-36	DTC143EU	Q673	8-729-905-12	DTA144EU	Q688
						Q659	8-729-905-35	2SC4081-R	Q674	8-729-141-48	2SB624-BV345	Q689
						Q660	8-729-905-35	2SC4081-R	Q675	8-729-905-18	DTC144EU	Q690

VA-64 (VIDEO PROCESS) PRINTED WIRING BOARD
—Ref. No. VA-64 BOARD: 3000 series—

VA-64 BOARD (CONDUCTOR SIDE)



< DIODE >

D415	8-719-421-30	MA141A
D416	8-719-800-76	1SS226
D417	8-719-941-86	DAN202U
D419	8-719-941-09	DAP202U
D420	8-719-941-86	DAN202U

D422	8-719-941-86	DAN202U
D423	8-719-941-86	DAN202U
D427	8-719-941-86	DAN202U
D428	8-719-941-86	DAN202U
D432	8-719-941-86	DAN202U

D433	8-719-941-86	DAN202U
D434	8-719-941-09	DAP202U
D435	8-719-941-86	DAN202U
D436	8-719-941-86	DAN202U
D437	8-719-941-86	DAN202U

D651	8-719-941-86	DAN202U
D652	8-719-977-22	DT29.1
D653	8-719-941-86	DAN202U
D654	8-719-977-22	DT29.1
D655	8-719-800-76	1SS226

D656	8-719-941-86	DAN202U
D657	8-719-800-76	1SS226
D661	8-719-941-86	DAN202U
D662	8-719-951-22	IMN10
D663	8-719-941-86	DAN202U

D667	8-719-941-89	DA106U
D669	8-719-977-22	DT29.1
D670	8-719-977-22	DT29.1
D671	8-719-977-22	DT29.1
D672	8-719-977-22	DT29.1

D673	8-719-800-76	1SS226
D674	8-719-977-22	DT29.1
D675	8-719-977-22	DT29.1
D676	8-719-977-22	DT29.1
D677	8-719-977-22	DT29.1

D678	8-719-977-22	DT29.1
D679	8-719-977-22	DT29.1
D680	8-719-977-22	DT29.1
D681	8-719-977-22	DT29.1
D690	8-719-941-86	DAN202U

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IC416	8-759-710-09	NJM2233AM
IC650	8-752-036-19	CXA1207AR
IC651	8-752-036-20	CXA1208R
IC652	8-759-605-61	CXA1203N
IC653	8-759-925-60	BA401
IC654	8-752-009-51	CX20095A
IC656	8-759-320-76	HA118070FP
IC657	8-752-333-24	CXL1506M
IC658	8-752-333-24	CXL1506M
IC659	8-759-710-29	NJM2235M

IC660	8-759-710-07	NJM2234M
IC661	8-759-710-07	NJM2234M
IC662	8-759-009-22	MC14094BF
IC663	8-759-710-29	NJM2235M

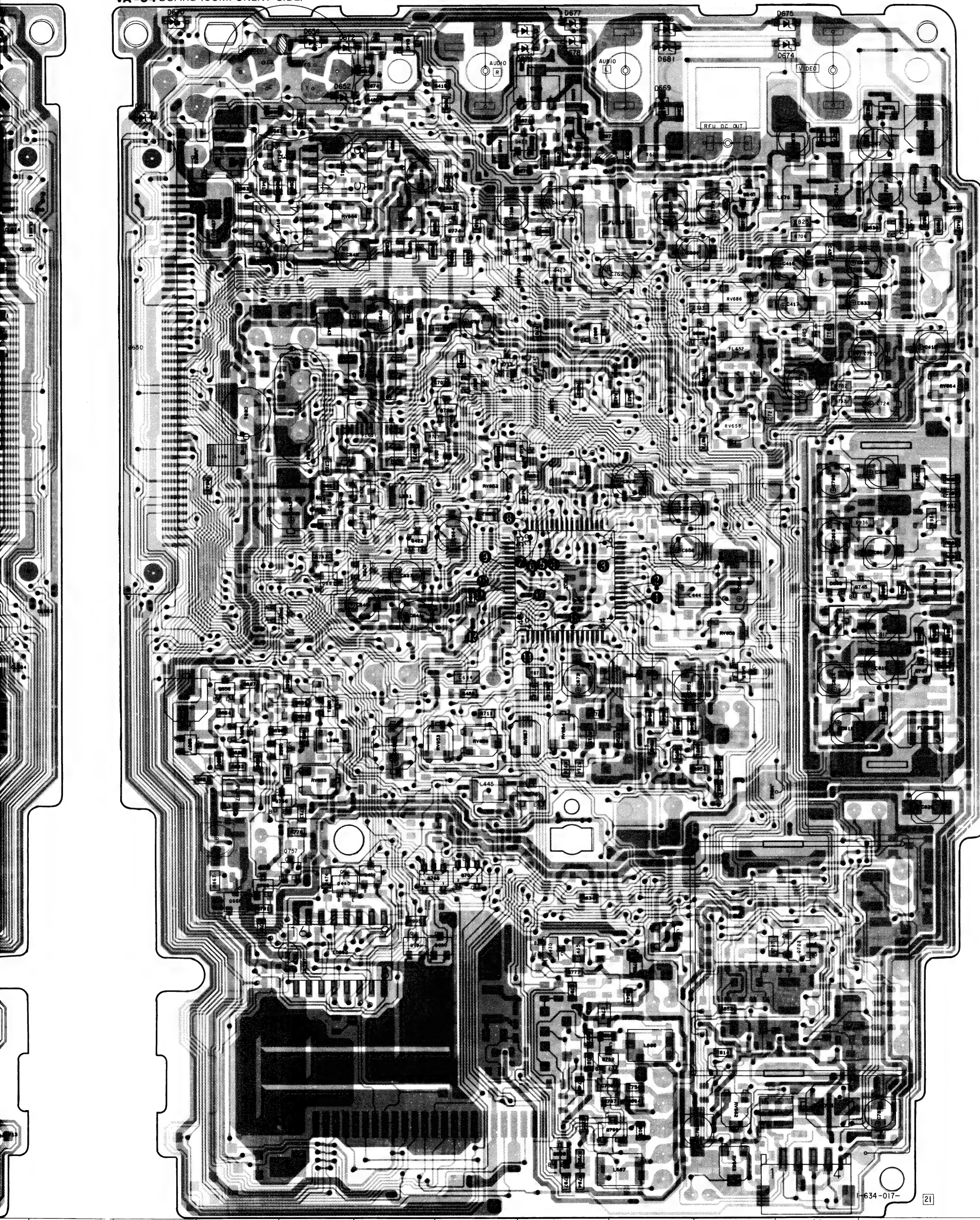
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Q411	8-729-905-23	2SA1576-R
Q412	8-729-905-18	DTC144EU
Q415	8-729-905-23	2SA1576-R
Q416	8-729-905-35	2SC4081-R
Q417	8-729-905-12	DTA144EU

Q418	8-729-905-35	2SC4081-R
Q421	8-729-905-23	2SA1576-R
Q422	8-729-905-18	DTC144EU
Q423	8-729-905-35	2SC4081-R
Q426	8-729-905-35	2SC4081-R

8-729-905-12 DTA144EU	Q691	8-729-905-18 DTC144EU	Q712	8-729-905-12 DTA144EU	Q734	8-729-905-18 DTC144EU	Q757	8-729-905-35 2SC4081-R	Q775	8-729-905-18 DTC144EU
8-729-905-12 DTA144EU	Q692	8-729-905-18 DTC144EU	Q717	8-729-905-23 2SA1576-R	Q735	8-729-905-35 2SC4081-R	Q758	8-729-905-35 2SC4081-R	Q776	8-729-921-58 DTA144TU
8-729-202-38 2SC3326N	Q693	8-729-202-38 2SC3326N	Q719	8-729-905-18 DTC144EU	Q736	8-729-905-45 DTA143EU	Q760	8-729-905-12 DTA144EU	Q777	8-729-905-23 2SA1576-R
8-729-202-38 2SC3326N	Q694	8-729-202-38 2SC3326N	Q721	8-729-202-38 2SC3326N	Q742	8-729-905-23 2SA1576-R	Q761	8-729-905-18 DTC144EU	Q784	8-729-905-35 2SC4081-R
8-729-905-35 2SC4081-R	Q696	8-729-905-18 DTC144EU	Q722	8-729-905-35 2SC4081-R	Q743	8-729-905-35 2SC4081-R	Q762	8-729-905-18 DTC144EU	Q786	8-729-905-18 DTC144EU
8-729-905-35 2SC4081-R	Q698	8-729-905-35 2SC4081-R	Q723	8-729-904-07 FMG2	Q744	8-729-905-35 2SC4081-R	Q763	8-729-905-18 DTC144EU	Q990	8-729-905-18 DTC144EU
8-729-905-35 2SC4081-R	Q699	8-729-905-12 DTA144EU	Q724	8-729-905-23 2SA1576-R	Q745	8-729-905-18 DTC144EU	Q764	8-729-905-35 2SC4081-R	Q991	8-729-905-18 DTC144EU
8-729-905-23 2SA1576-R	Q700	8-729-202-38 2SC3326N	Q725	8-729-905-23 2SA1576-R	Q746	8-729-141-48 2SB624-BV345	Q765	8-729-905-35 2SC4081-R		
8-729-905-18 DTC144EU	Q701	8-729-905-35 2SC4081-R	Q727	8-729-905-45 DTA143EU	Q747	8-729-905-23 2SA1576-R				
8-729-905-12 DTA144EU	Q702	8-729-905-35 2SC4081-R	Q728	8-729-905-23 2SA1576-R						
8-729-905-35 2SC4081-R	Q703	8-729-905-23 2SA1576-R	Q729	8-729-905-35 2SC4081-R	Q748	8-729-905-35 2SC4081-R	Q766	8-729-905-23 2SA1576-R		
8-729-905-35 2SC4081-R	Q705	8-729-905-12 DTA144EU	Q730	8-729-905-23 2SA1576-R	Q751	8-729-905-35 2SC4081-R	Q770	8-729-101-07 2SB798-DL		
8-729-905-35 2SC4081-R	Q707	8-729-904-20 FMA2	Q731	8-729-905-12 DTA144EU	Q752	8-729-905-23 2SA1576-R	Q772	8-729-905-12 DTA144EU		
8-729-905-35 2SC4081-R	Q708	8-729-904-07 FMG2	Q732	8-729-905-35 2SC4081-R	Q753	8-729-904-20 FMA2	Q773	8-729-905-12 DTA144EU		
8-729-141-48 2SB624-BV345	Q711	8-729-905-12 DTA144EU	Q733	8-729-905-18 DTC144EU	Q756	8-729-905-23 2SA1576-R	Q774	8-729-905-35 2SC4081-R		

VA-64 BOARD (COMPONENT SIDE)



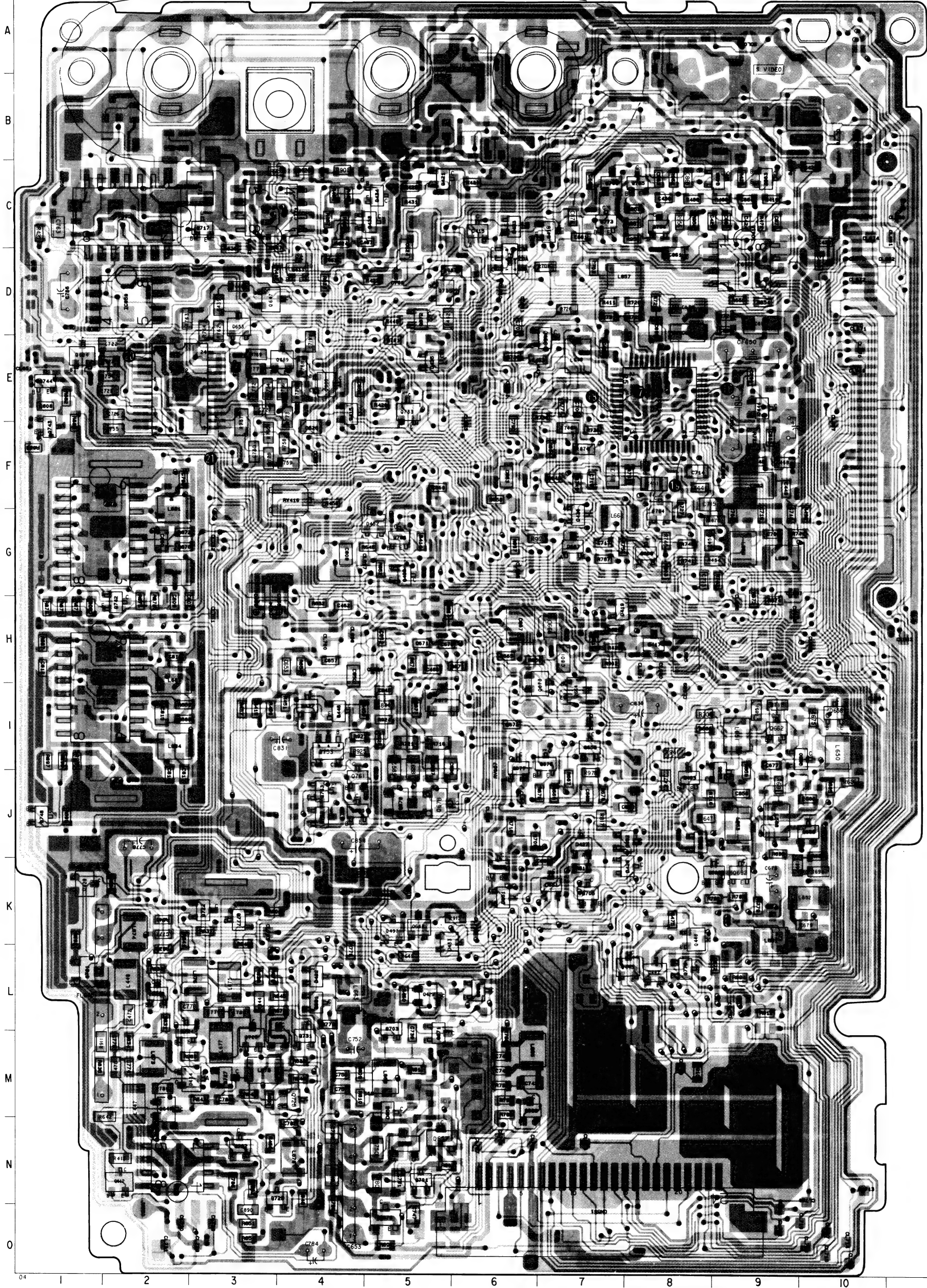
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D415	8-719-421-30	MA141A	D433	8-719-941-86	DAN202U	D656	8-719-941-86	DAN202U	D678	8-719-977-22	DTZ9. 1	IC660	8-759-710-07	NJM2234M	Q427	8-729-905-35	2	
D416	8-719-800-76	1SS226	D434	8-719-941-09	DAP202U	D657	8-719-800-76	1SS226	D679	8-719-977-22	DTZ9. 1	IC661	8-759-710-07	NJM2234M	Q428	8-729-905-XX	D	
D417	8-719-941-86	DAN202U	D435	8-719-941-86	DAN202U	D661	8-719-941-86	DAN202U	D680	8-719-977-22	DTZ9. 1	IC662	8-759-009-22	MC14094BF	Q429	8-729-905-35	2	
D419	8-719-941-09	DAP202U	D436	8-719-941-86	DAN202U	D662	8-719-951-22	IMN10	D681	8-719-977-22	DTZ9. 1	IC663	8-759-710-29	NJM2235M	Q430	8-729-905-18	D	
D420	8-719-941-86	DAN202U	D437	8-719-941-86	DAN202U	D663	8-719-941-86	DAN202U	D690	8-719-941-86	DAN202U							
										< TRANSISTOR >								
D422	8-719-941-86	DAN202U	D651	8-719-941-86	DAN202U	D667	8-719-941-89	DA106U	< IC >			Q411	8-729-905-23	2SA1576-R	Q432	8-729-905-23	2	
D423	8-719-941-86	DAN202U	D652	8-719-977-22	DTZ9. 1	D669	8-719-977-22	DTZ9. 1	IC416	8-759-710-09	NJM2233AM	Q412	8-729-905-18	DTC144EU	Q433	8-729-905-35	2	
D427	8-719-941-86	DAN202U	D653	8-719-941-86	DAN202U	D670	8-719-977-22	DTZ9. 1	IC650	8-752-036-19	CXA1207AR	Q415	8-729-905-23	2SA1576-R	Q434	8-729-905-23	2	
D428	8-719-941-86	DAN202U	D654	8-719-977-22	DTZ9. 1	D671	8-719-977-22	DTZ9. 1	IC651	8-752-036-20	CXA1208R	Q416	8-729-905-35	2SC4081-R	Q439	8-729-905-12	D	
D432	8-719-941-86	DAN202U	D655	8-719-800-76	1SS226	D672	8-719-977-22	DTZ9. 1	IC652	8-759-605-61	CXA1203N	Q417	8-729-905-12	DTA144EU	Q440	8-729-905-35	2	
										IC653	8-759-925-60	BA401						
										IC654	8-752-009-51	CX20095A	Q418	8-729-905-35	2SC4081-R	Q442	8-729-905-18	D
										IC656	8-759-320-76	HA118070FP	Q421	8-729-905-23	2SA1576-R	Q443	8-729-905-18	D
										IC657	8-752-333-24	CXL1506M	Q422	8-729-905-18	DTC144EU	Q444	8-729-905-35	2
										IC658	8-752-333-24	CXL1506M	Q423	8-729-905-35	2SC4081-R	Q446	8-729-905-35	2
										IC659	8-759-710-29	NJM2235M	Q426	8-729-905-35	2SC4081-R	Q447	8-729-921-58	D
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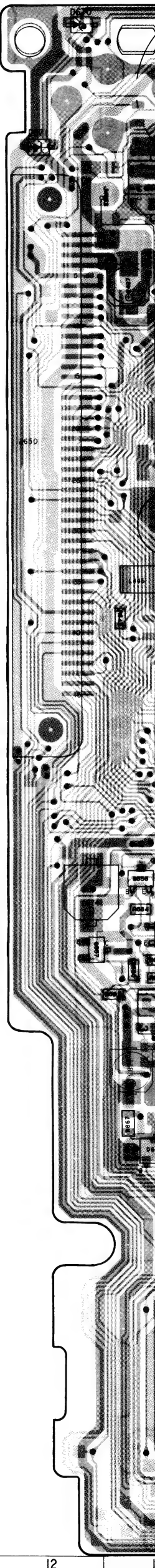
VA-64 (VIDEO PROCESS) PRINTED WIRING BOARD																	
—Ref. No. VA-64 BOARD: 3000 series—																	

VA-64 (VIDEO PROCESS) PRINTED WIRING BOARD
—Ref. No. VA-64 BOARD: 3000 series—

VA-64 BOARD(CONDUCTOR SIDE)



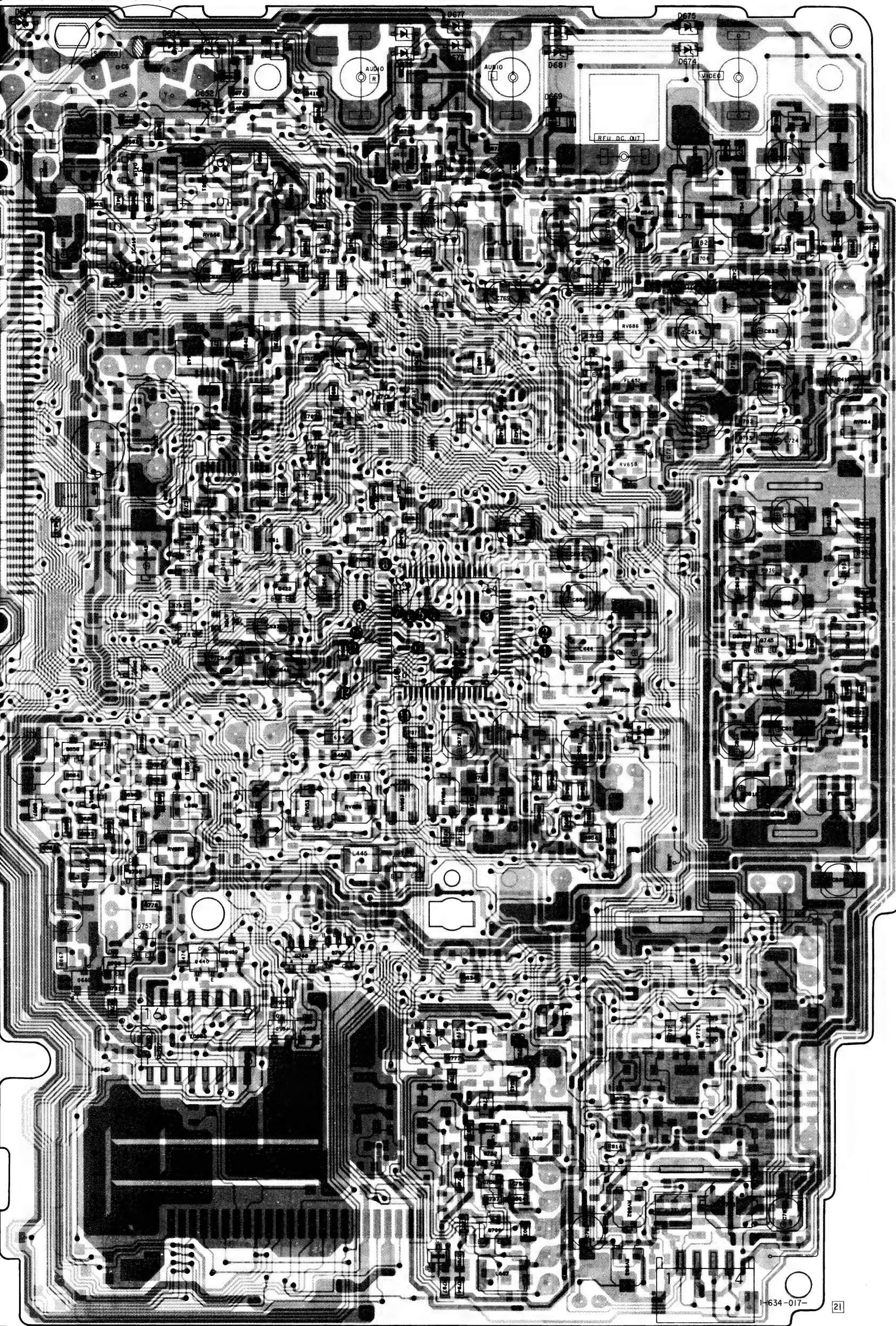
VA-64 BOARD (COMPONENT SIDE)



8-729-905-35 2SC4081-R	Q448	8-729-905-18 DTC144EU	Q656	8-729-905-23 2SA1576-R	Q671	8-729-905-18 DTC144EU
8-729-905-XX DTC114TU	Q452	8-729-905-18 DTC144EU	Q657	8-729-905-35 2SC4081-R	Q672	8-729-905-18 DTC144EU
8-729-905-35 2SC4081-R	Q456	8-729-905-18 DTC144EU	Q658	8-729-924-36 DTC143EU	Q673	8-729-905-12 DTA144EU
8-729-905-18 DTC144EU	Q491	8-729-905-96 DTA114TU	Q659	8-729-905-35 2SC4081-R	Q674	8-729-141-48 2SB624-BV345
8-729-905-23 2SA1576-R	Q493	8-729-905-12 DTA144EU	Q660	8-729-905-35 2SC4081-R	Q675	8-729-905-18 DTC144EU

8-729-905-23 2SA1576-R	Q494	8-729-905-35 2SC4081-R	Q661	8-729-905-35 2SC4081-R	Q676	8-729-905-12 DTA144EU
8-729-905-35 2SC4081-R	Q497	8-729-905-18 DTC144EU	Q662	8-729-905-35 2SC4081-R	Q677	8-729-905-12 DTA144EU
8-729-905-23 2SA1576-R	Q498	8-729-905-18 DTC144EU	Q663	8-729-905-23 2SA1576-R	Q678	8-729-202-38 2SC3326N
8-729-905-12 DTA144EU	Q643	8-729-905-23 2SA1576-R	Q664	8-729-905-18 DTC144EU	Q679	8-729-202-38 2SC3326N
8-729-905-35 2SC4081-R	Q645	8-729-905-18 DTC144EU	Q665	8-729-905-35 2SC4081-R	Q680	8-729-905-35 2SC4081-R
8-729-905-18 DTC144EU	Q647	8-729-905-18 DTC144EU				
8-729-905-18 DTC144EU	Q648	8-729-905-12 DTA144EU	Q666	8-729-905-35 2SC4081-R	Q681	8-729-905-35 2SC4081-R
8-729-905-35 2SC4081-R	Q649	8-729-905-18 DTC144EU	Q667	8-729-905-18 DTC144EU	Q682	8-729-905-35 2SC4081-R
8-729-905-35 2SC4081-R	Q651	8-729-905-23 2SA1576-R	Q668	8-729-905-18 DTC144EU	Q683	8-729-905-23 2SA1576-R
8-729-921-58 DTA144TU	Q655	8-729-905-12 DTA144EU	Q669	8-729-905-18 DTC144EU	Q684	8-729-905-18 DTC144EU
			Q670	8-729-202-38 2SC3326N	Q685	8-729-905-12 DTA144EU

BOARD (COMPONENT SIDE)



Q686	8-729-905-35 2SC4081-R
Q687	8-729-905-35 2SC4081-R
Q688	8-729-905-35 2SC4081-R
Q689	8-729-905-35 2SC4081-R
Q690	8-729-141-48 2SB624-BV345

Q691	8-729-905-18 DTC144EU
Q692	8-729-905-18 DTC144EU
Q693	8-729-202-38 2SC3326N
Q694	8-729-202-38 2SC3326N

Q696	8-729-905-18 DTC144EU
Q698	8-729-905-35 2SC4081-R
Q699	8-729-905-12 DTA144EU
Q700	8-729-202-38 2SC3326N
Q701	8-729-905-35 2SC4081-R
Q702	8-729-905-35 2SC4081-R

Q703	8-729-905-23 2SA1576-R
Q705	8-729-905-12 DTA144EU
Q707	8-729-904-20 FMA2
Q708	8-729-904-07 FMG2
Q711	8-729-905-12 DTA144EU

Q712	8-729-905-12 DTA144EU
Q717	8-729-905-23 2SA1576-R
Q719	8-729-905-18 DTC144EU
Q721	8-729-202-38 2SC3326N
Q722	8-729-905-35 2SC4081-R

Q723	8-729-904-07 FMG2
Q724	8-729-905-23 2SA1576-R
Q725	8-729-905-23 2SA1576-R
Q727	8-729-905-45 DTA143EU
Q728	8-729-905-23 2SA1576-R

Q729	8-729-905-35 2SC4081-R
Q730	8-729-905-23 2SA1576-R
Q731	8-729-905-12 DTA144EU
Q732	8-729-905-35 2SC4081-R
Q733	8-729-905-18 DTC144EU

Q734	8-729-905-18 DTC144EU
Q735	8-729-905-35 2SC4081-R
Q736	8-729-905-45 DTA143EU
Q742	8-729-905-23 2SA1576-R

Q743	8-729-905-35 2SC4081-R
Q744	8-729-905-35 2SC4081-R
Q745	8-729-905-18 DTC144EU
Q746	8-729-141-48 2SB624-BV345
Q747	8-729-905-23 2SA1576-R

Q748	8-729-905-35 2SC4081-R
Q751	8-729-905-35 2SC4081-R
Q752	8-729-905-23 2SA1576-R
Q753	8-729-904-20 FMA2
Q756	8-729-905-23 2SA1576-R

Q757	8-729-905-35 2SC4081-R
Q758	8-729-905-35 2SC4081-R
Q760	8-729-905-12 DTA144EU
Q761	8-729-905-18 DTC144EU
Q762	8-729-905-18 DTC144EU

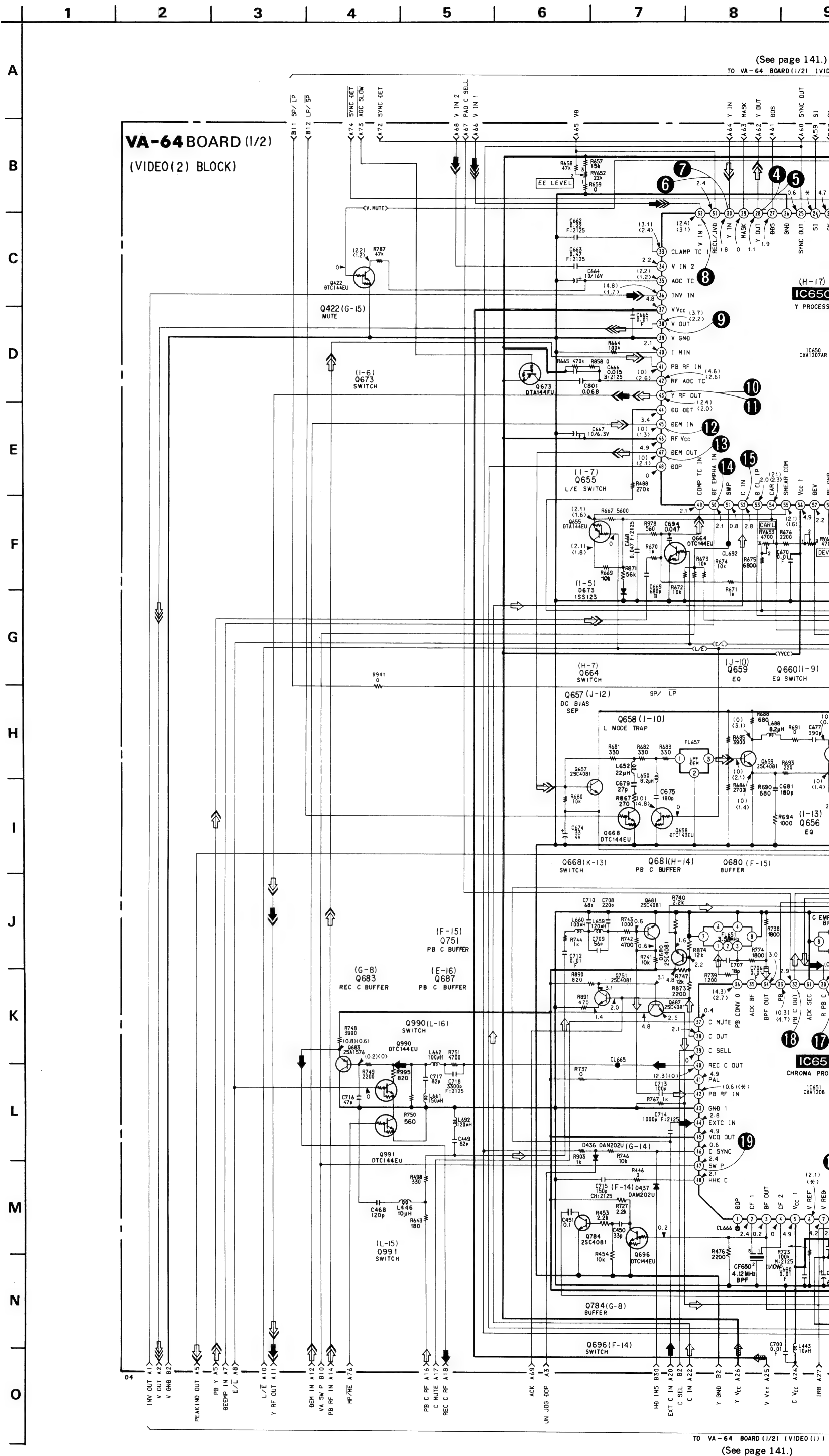
Q763	8-729-905-18 DTC144EU
Q764	8-729-905-35 2SC4081-R
Q765	8-729-905-35 2SC4081-R

Q766	8-729-905-23 2SA1576-R
Q770	8-729-101-07 2SB798-DL
Q772	8-729-905-12 DTA144EU
Q773	8-729-905-12 DTA144EU
Q774	8-729-905-35 2SC4081-R

Q775	8-729-905-18 DTC144EU
Q776	8-729-921-58 DTA144TU
Q777	8-729-905-23 2SA1576-R
Q784	8-729-905-35 2SC4081-R
Q786	8-729-905-18 DTC144EU

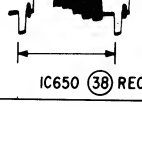
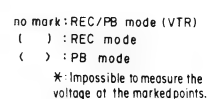
Q990	8-729-905-18 DTC144EU
Q991	8-729-905-18 DTC144EU

VA-64 (VIDEO PROCESS) SCHEMATIC DIAGRAM
—Ref. No. VA-64 BOARD: 3000 series—



- **Signal path**

REC			
PB			

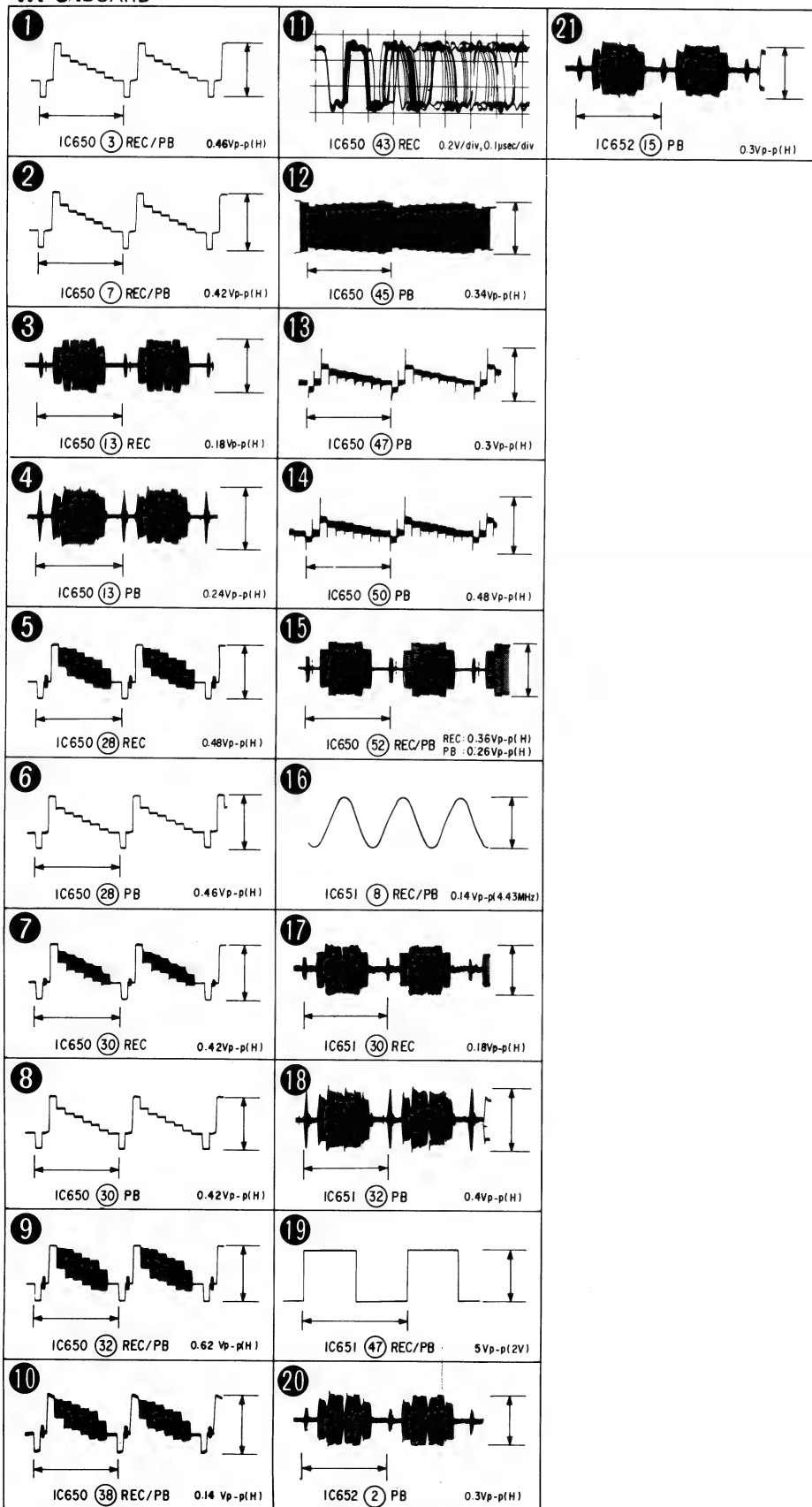


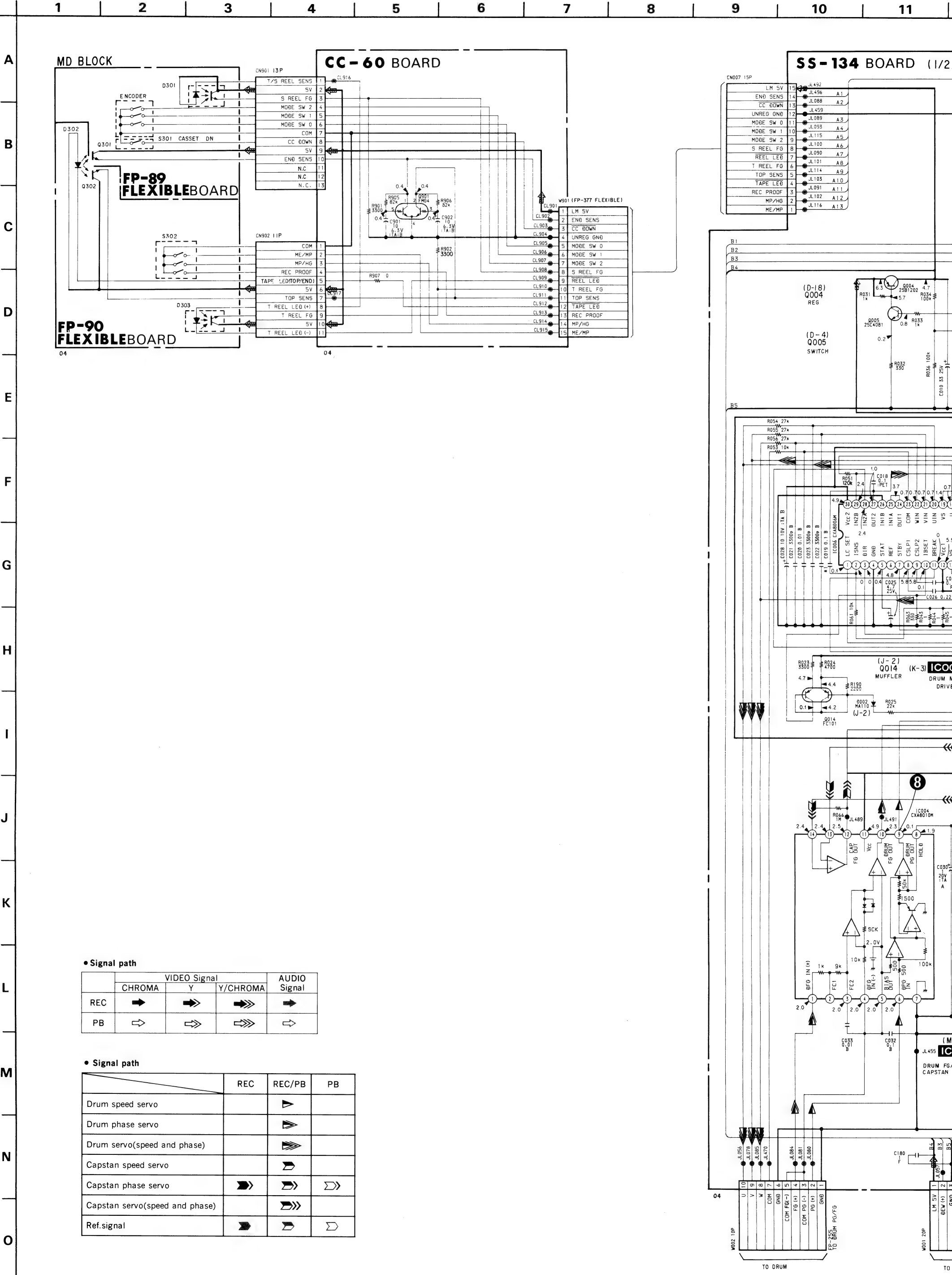
137 V MUTE
136 J06
135 VA PB MODE

1 SYNC DET
2 V MUTE
3 (G-5)
0432
DAN202U

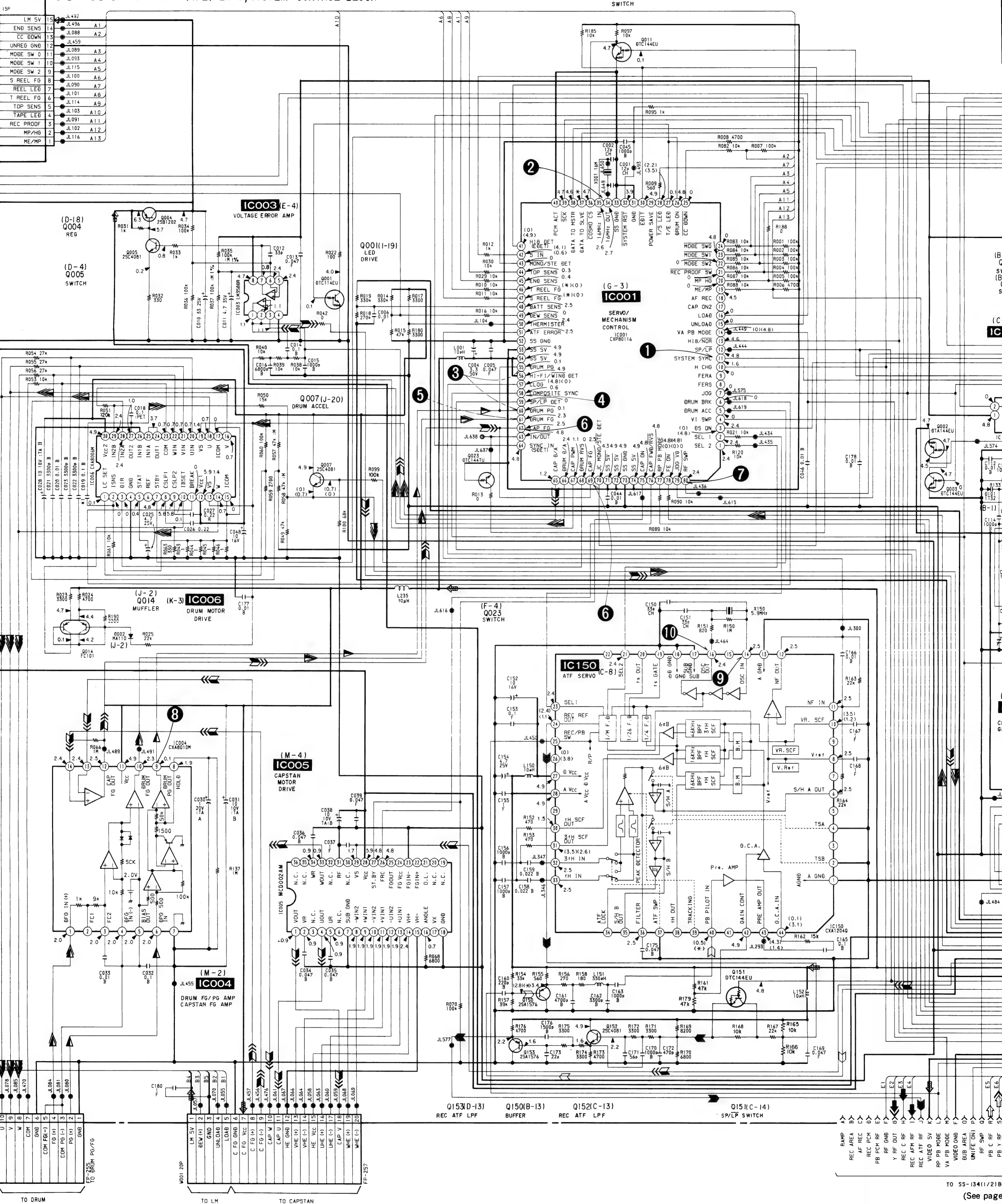
VP mode (VTR)
mode
mode
mode
possible to measure the
of the marked points.

VA-64BOARD

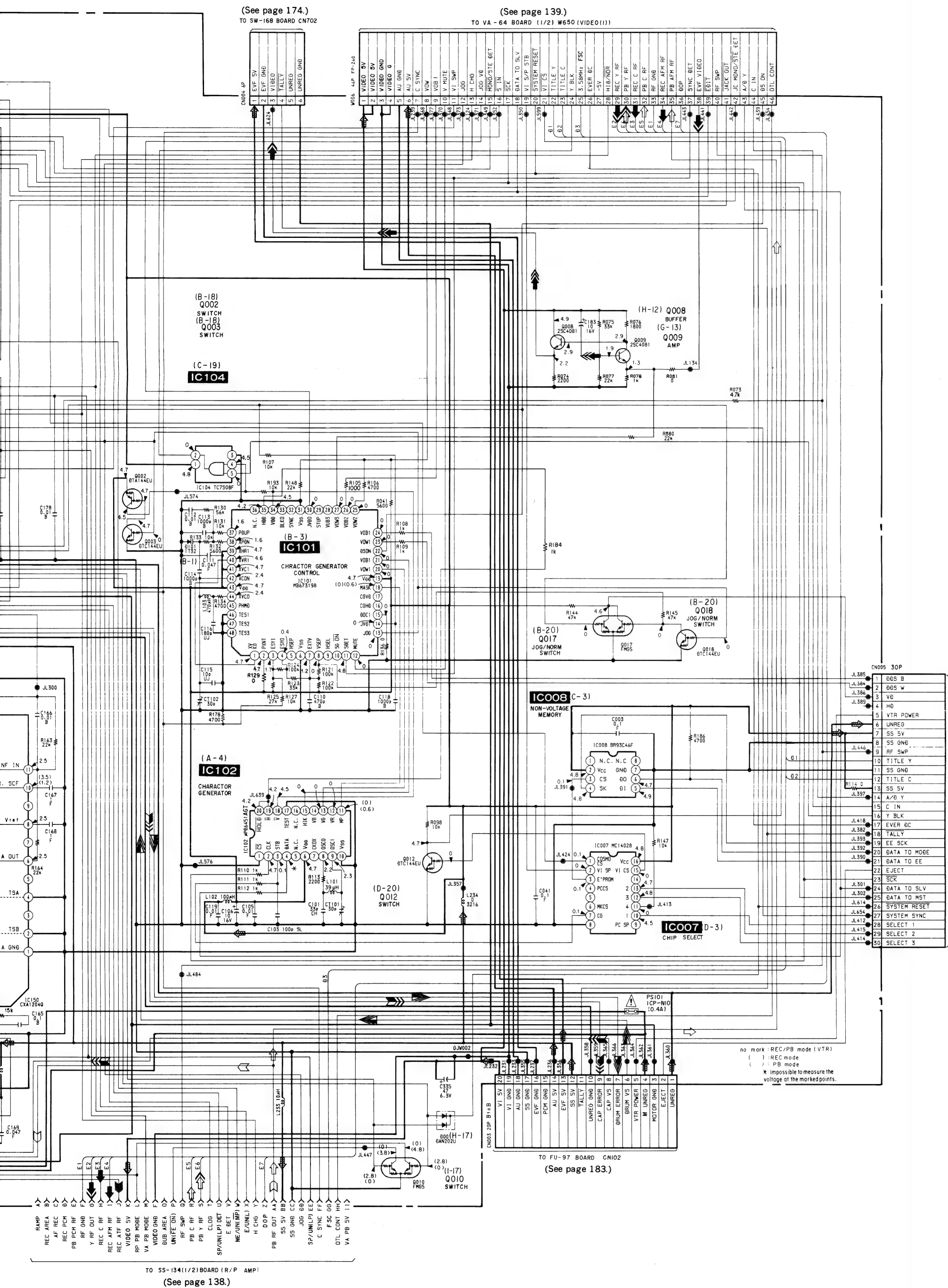




Q 011(H-19)
SWITCH



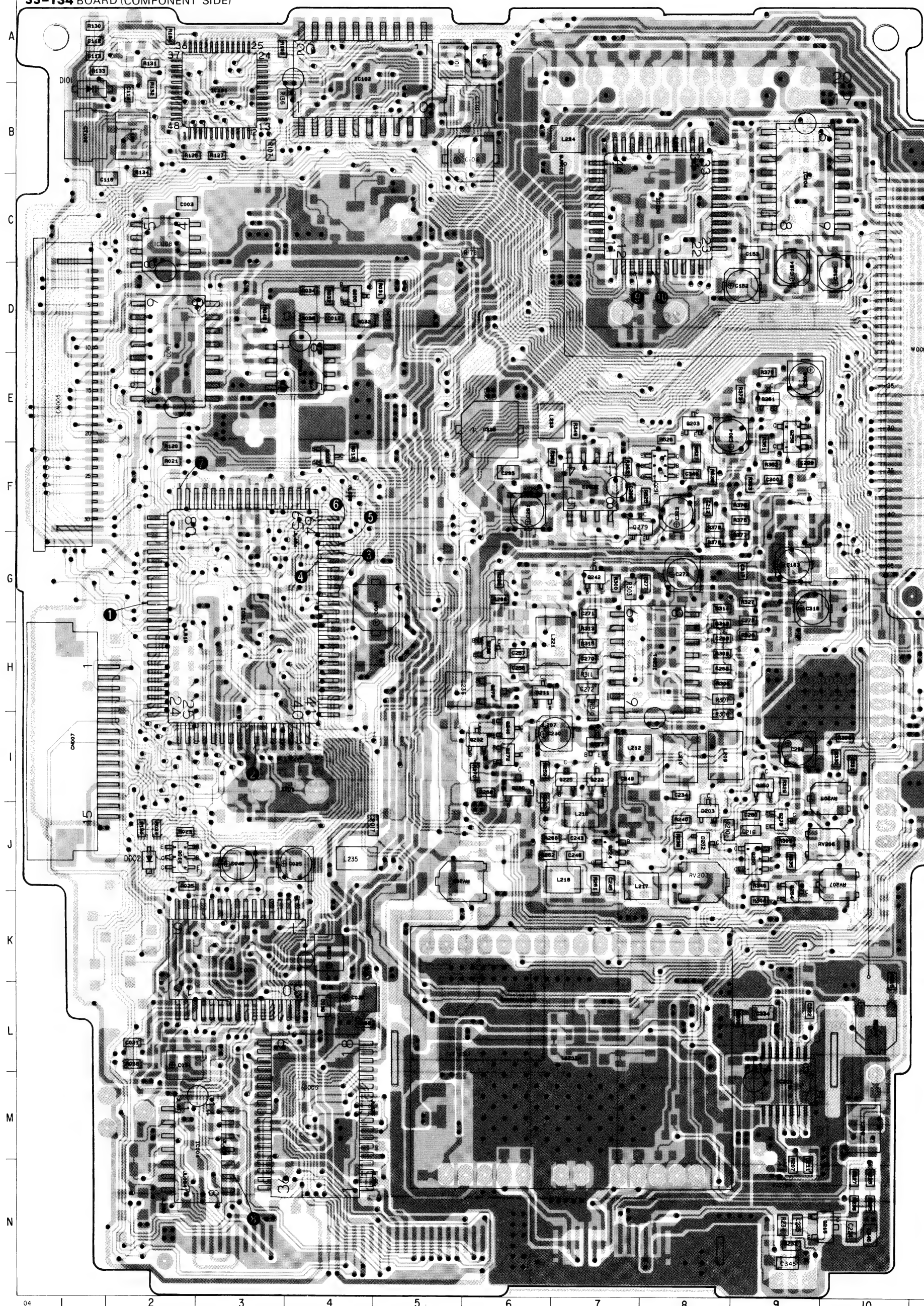
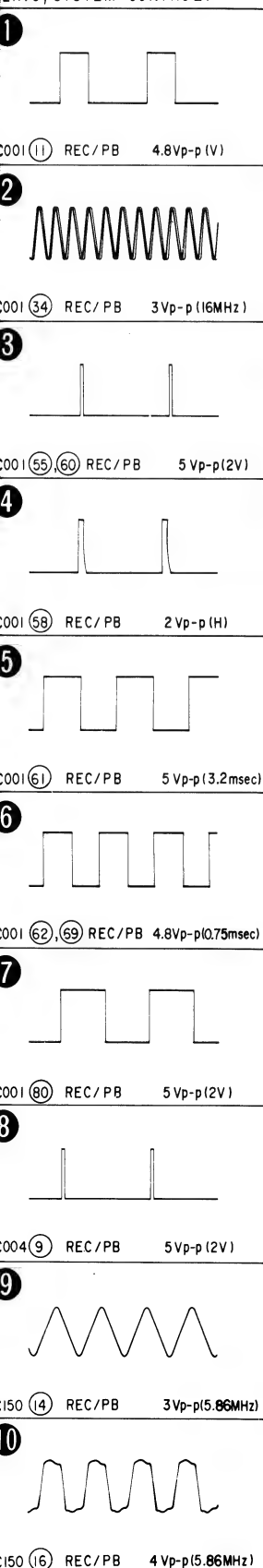
TO SS-134(1/2)B
(See page



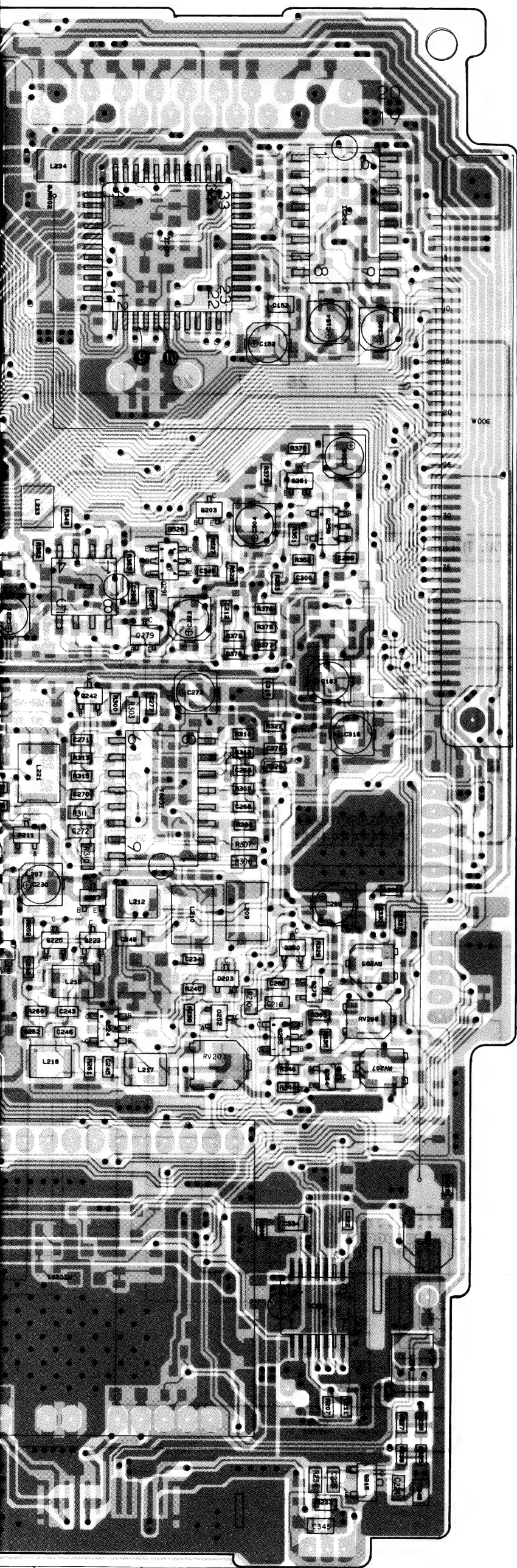
SS-134 (R/P AMP, SERVO, SYSTEM CONTROL), CC-60 (RELAY), FP-89 (MODE SWITCH, SENSOR), FP-90 (TAPE SELECT SWITCH, SENSOR) PRINTED WIRING BOARD
 —Ref. No. SS-134, CC-60 BOARDS: 2000 series, FP-89, FP-90 BOARDS: 5000 series—

SS-134 BOARD (COMPONENT SIDE)

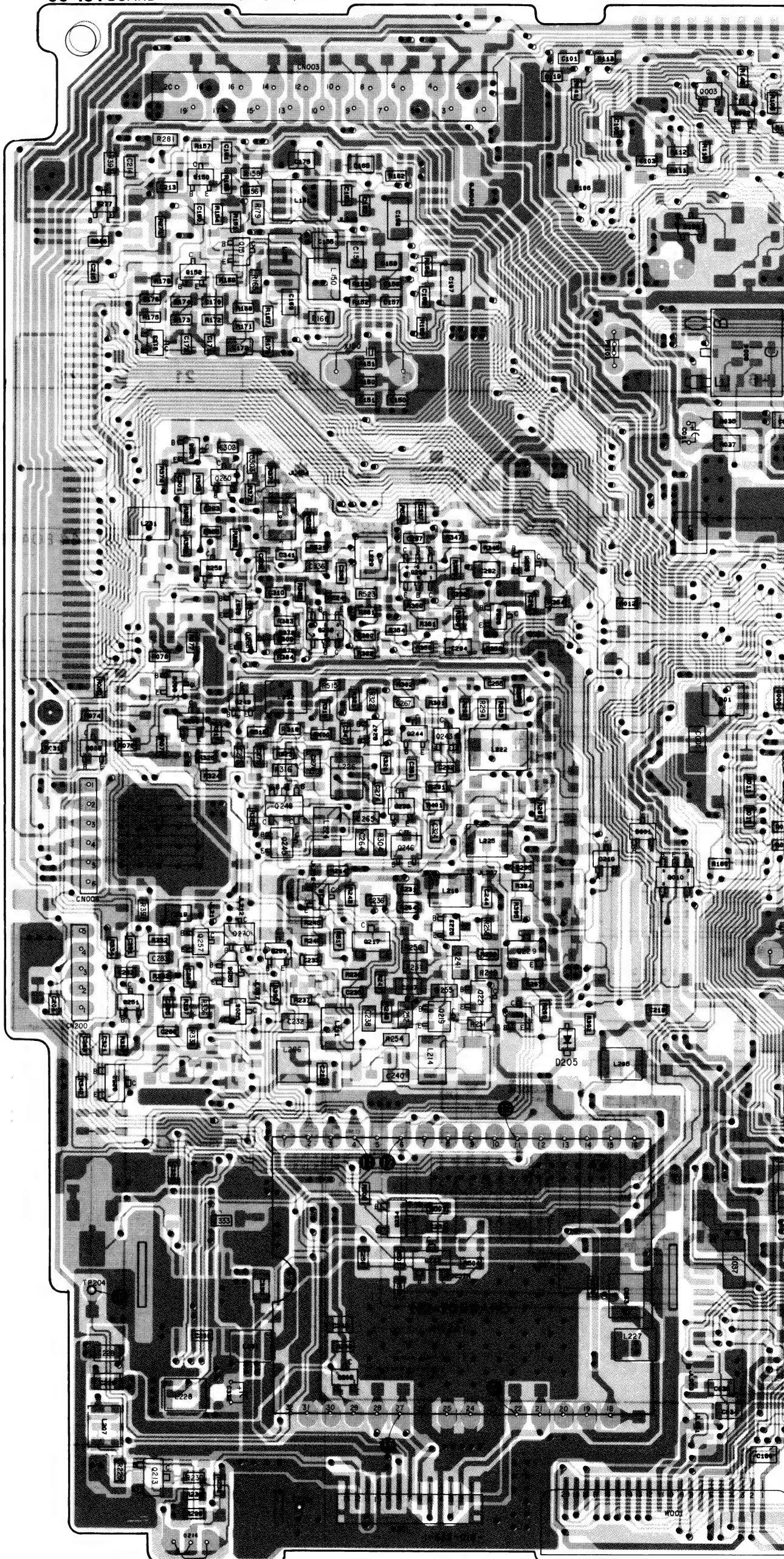
SS-134 BOARD (SERVO, SYSTEM CONTROL)



TCH, SENSOR), FP-90 (TAPE SELECT SWITCH, SENSOR) PRINTED WIRING BOARDS



SS-134 BOARD (CONDUCTOR SIDE)



< DIODE >			
D001	8-719-941-86	DAN20	
D002	8-719-404-46	MA110	
D101	8-719-949-46	1T32	
D202	8-719-941-86	DAN20	
D203	8-719-941-86	DAN20	
D205	8-719-404-46	MA110	
D208	8-719-941-86	DAN20	
D210	8-719-941-86	DAN20	
D211	8-719-941-86	DAN20	
< IC >			
IC001	8-752-830-81	CXP80	
IC003	8-759-998-98	LM358	
IC004	8-759-148-05	CXA80	

< DIODE >

D001 8-719-941-86 DAN202U
D002 8-719-404-46 MA110
D101 8-719-949-46 1T32
D202 8-719-941-86 DAN202U
D203 8-719-941-86 DAN202U

D205 8-719-404-46 MA110
D208 8-719-941-86 DAN202U
D210 8-719-941-86 DAN202U
D211 8-719-941-86 DAN202U

< IC >

IC001 8-752-830-81 CXP80116-837Q
IC003 8-759-998-98 LM358D
IC004 8-759-148-05 CXA8010M

IC005 8-759-823-65 MCD002AM
IC006 8-759-990-55 CXA8006M
IC007 8-759-008-95 MC14028BF
IC008 8-759-748-72 BR93C46F
IC101 8-759-970-80 MB673198U

IC102 8-759-153-41 uPD6451AGT-611-E1
IC104 8-759-234-20 TC7S08F
IC150 8-752-035-48 CXA1204Q
IC201 8-759-012-00 MC10H116M
IC202 8-759-998-92 LM393D

IC204 8-759-998-32 CXD2107M
IC205 8-759-148-49 CXA1443N

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Q001 8-729-907-00 DTC114EU
Q002 8-729-905-12 DTA144EU
Q003 8-729-905-18 DTC144EU
Q004 8-729-820-47 2SB1202FAT
Q005 8-729-905-35 2SC4081-R

Q007 8-729-905-35 2SC4081-R
Q008 8-729-905-35 2SC4081-R
Q009 8-729-905-35 2SC4081-R
Q010 8-729-907-03 FMG5
Q011 8-729-905-18 DTC144EU

Q012 8-729-905-18 DTC144EU
Q014 8-729-822-48 FC101
Q017 8-729-907-03 FMG5
Q018 8-729-905-18 DTC144EU
Q023 8-729-921-08 DTC144TU

Q150 8-729-905-23 2SA1576-R
Q151 8-729-905-18 DTC144EU
Q152 8-729-905-35 2SC4081-R
Q153 8-729-905-23 2SA1576-R
Q202 8-729-905-35 2SC4081-R

Q203 8-729-905-35 2SC4081-R
Q213 8-729-216-22 2SA1162G
Q214 8-729-119-76 2SA1175-HFE
Q215 8-729-216-22 2SA1162G
Q217 8-729-102-07 2SC2223-F13

Q218 8-729-905-35 2SC4081-R
Q219 8-729-905-35 2SC4081-R
Q221 8-729-905-35 2SC4081-R
Q222 8-729-907-00 DTC114EU
Q223 8-729-905-35 2SC4081-R

Q224 8-729-904-07 FMG2
Q225 8-729-905-45 DTA143EU
Q227 8-729-905-35 2SC4081-R
Q229 8-729-141-48 2SB624-BV345
Q230 8-729-141-48 2SB624-BV345

Q231 8-729-905-18 DTC144EU
Q232 8-729-905-18 DTC144EU
Q233 8-729-102-07 2SC2223-F13
Q234 8-729-102-07 2SC2223-F13
Q238 8-729-117-31 2SC4177-L5

Q239 8-729-905-18 DTC144EU
Q240 8-729-905-18 DTC144EU
Q242 8-729-117-31 2SC4177-L5
Q243 8-729-905-18 DTC144EU
Q244 8-729-140-63 2SA1611-M5

Q245 8-729-117-31 2SC4177-L5
Q246 8-729-905-18 DTC144EU
Q247 8-729-905-35 2SC4081-R
Q248 8-729-903-10 FMW1
Q249 8-729-905-18 DTC144EU

Q250 8-729-905-12 DTA144EU
Q251 8-729-905-35 2SC4081-R
Q252 8-729-102-07 2SC2223-F13
Q254 8-729-905-35 2SC4081-R

Q255 8-729-904-07 FMG2
Q256 8-729-905-12 DTA144EU
Q257 8-729-905-18 DTC144EU
Q258 8-729-903-10 FMW1
Q259 8-729-905-35 2SC4081-R

Q260 8-729-905-35 2SC4081-R
Q261 8-729-905-23 2SA1576-R
Q262 8-729-905-23 2SA1576-R
Q263 8-729-907-26 IMX1
Q265 8-729-905-35 2SC4081-R

Q266 8-729-905-35 2SC4081-R
Q267 8-729-905-35 2SC4081-R
Q268 8-729-905-23 2SA1576-R
Q269 8-729-907-26 IMX1
Q270 8-729-905-12 DTA144EU

Q272 8-729-922-94 DTC143TU
Q273 8-729-141-48 2SB624-BV345
Q277 8-729-905-35 2SC4081-R
Q278 8-729-905-35 2SC4081-R
Q279 8-729-905-18 DTC144EU

Q280 8-729-905-35 2SC4081-R
Q291 8-729-907-26 IMX1
Q295 8-729-905-35 2SC4081-R

CC-60BOARD(CO

A

B

C

D

E

F

G

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I

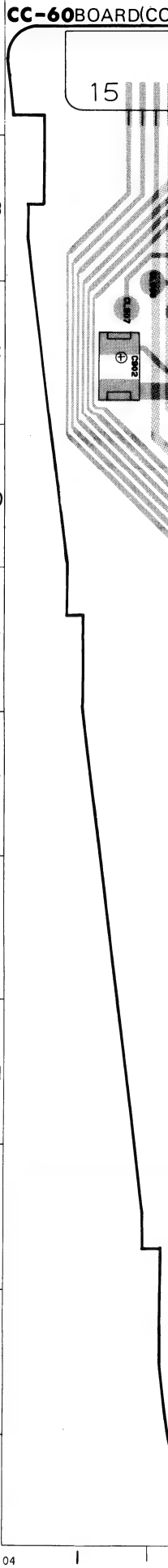
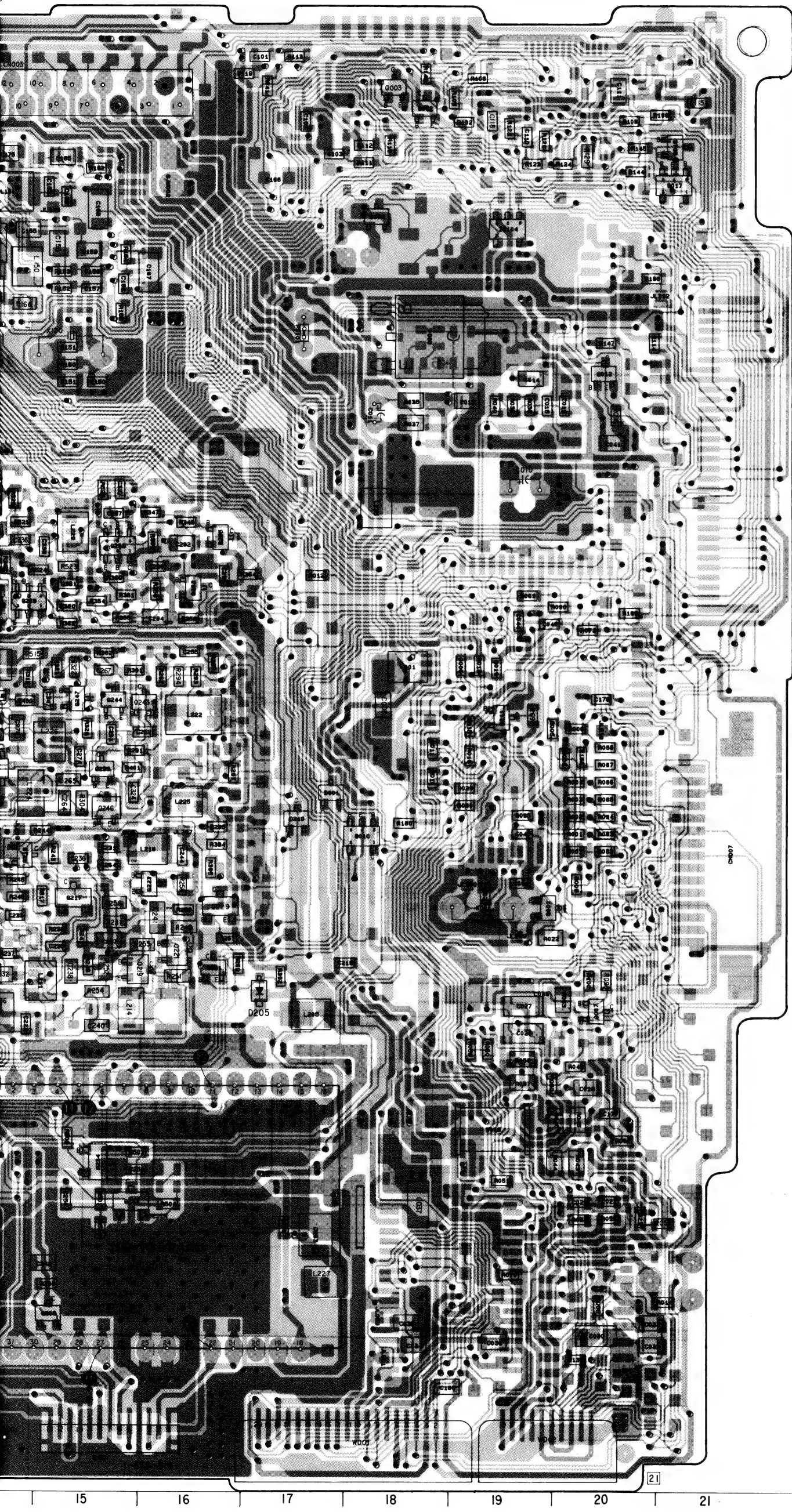
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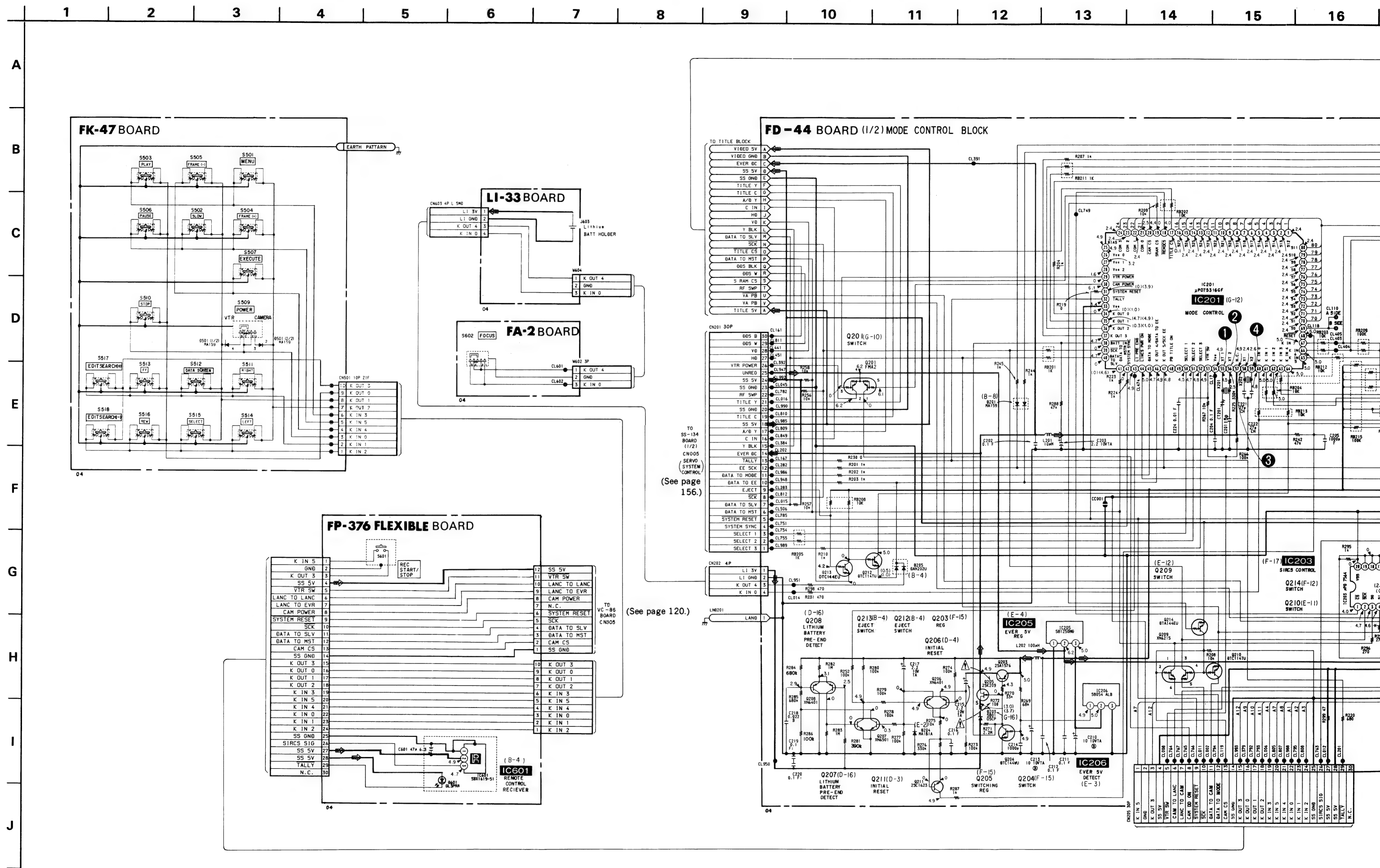
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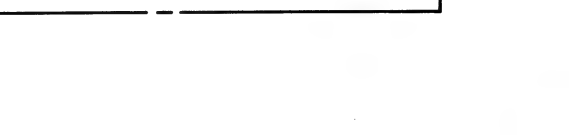
04

< TRANSISTOR >

Q901 8-729-902-9







< DIODE >

D201 8-719-940-45 DWA010
D202 8-719-404-46 MA110
D203 8-719-938-72 SB01-05CP
D204 8-719-420-36 MA151A
D205 8-719-941-86 DAN202U

D213 8-719-404-46 MA110
D301 8-719-404-46 MA110

< IC >

IC201 8-759-154-86 uPD75316GF-121-3B9
IC202 8-759-999-02 TL1596CDB
IC203 8-759-145-63 uPD7564G-540
IC205 8-759-937-54 S-81250HG-RD-S
IC206 8-759-937-56 S-8054ALB-LM-S

IC301 8-759-998-30 CF79028PG
IC302 8-752-330-66 CXK58257M-10L
IC303 8-752-039-49 CXA1393AN
IC304 8-759-634-47 M51285BGP

< TRANSISTOR >

Q201 8-729-904-20 FMA2
Q202 8-729-905-18 DTC144EU
Q203 8-729-905-24 2SA1576-S
Q204 8-729-905-15 DTC144WU
Q205 8-729-109-44 2SK94

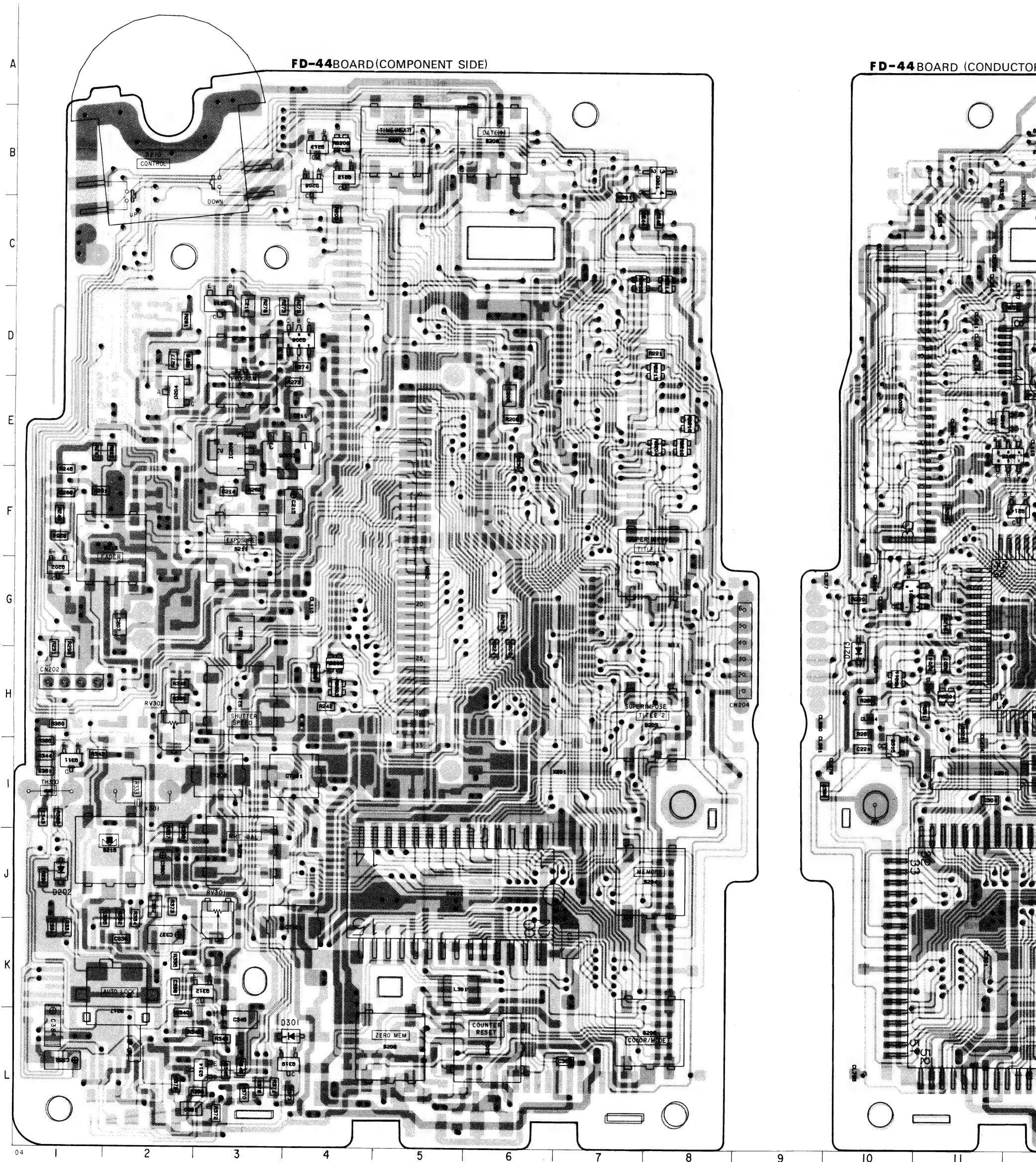
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Q207 8-729-402-19 XN6501
Q208 8-729-402-78 XN6401
Q209 8-729-403-10 XN6215
Q210 8-729-905-XX DTC114TU

Q211 8-729-100-66 2SC1623
Q212 8-729-905-XX DTC114TU
Q213 8-729-905-18 DTC144EU
Q214 8-729-905-12 DTA144EU
Q301 8-729-925-91 DTC115EU

FD-44 (MODE CONTROL, CHARACTER GENERATOR), FK-47 (FUNCTION SWITCH), FA-2 (FOCUS SWITCH), LI-33 (LITHIUM BATTERY HOLDER), FP-376 (REMOTE COMMAND SWITCH)
—Ref. No. FD-44 BOARD: 4000 series, FK-47, FA-2, LI-33, FP-376 BOARDS: 5000 series—

FD-44 BOARD (COMPONENT SIDE)

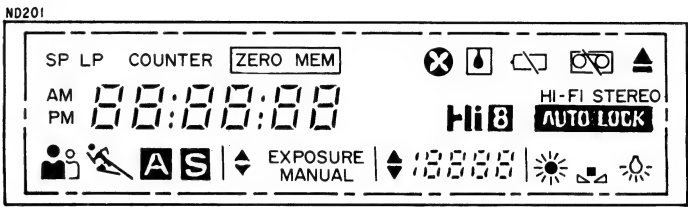
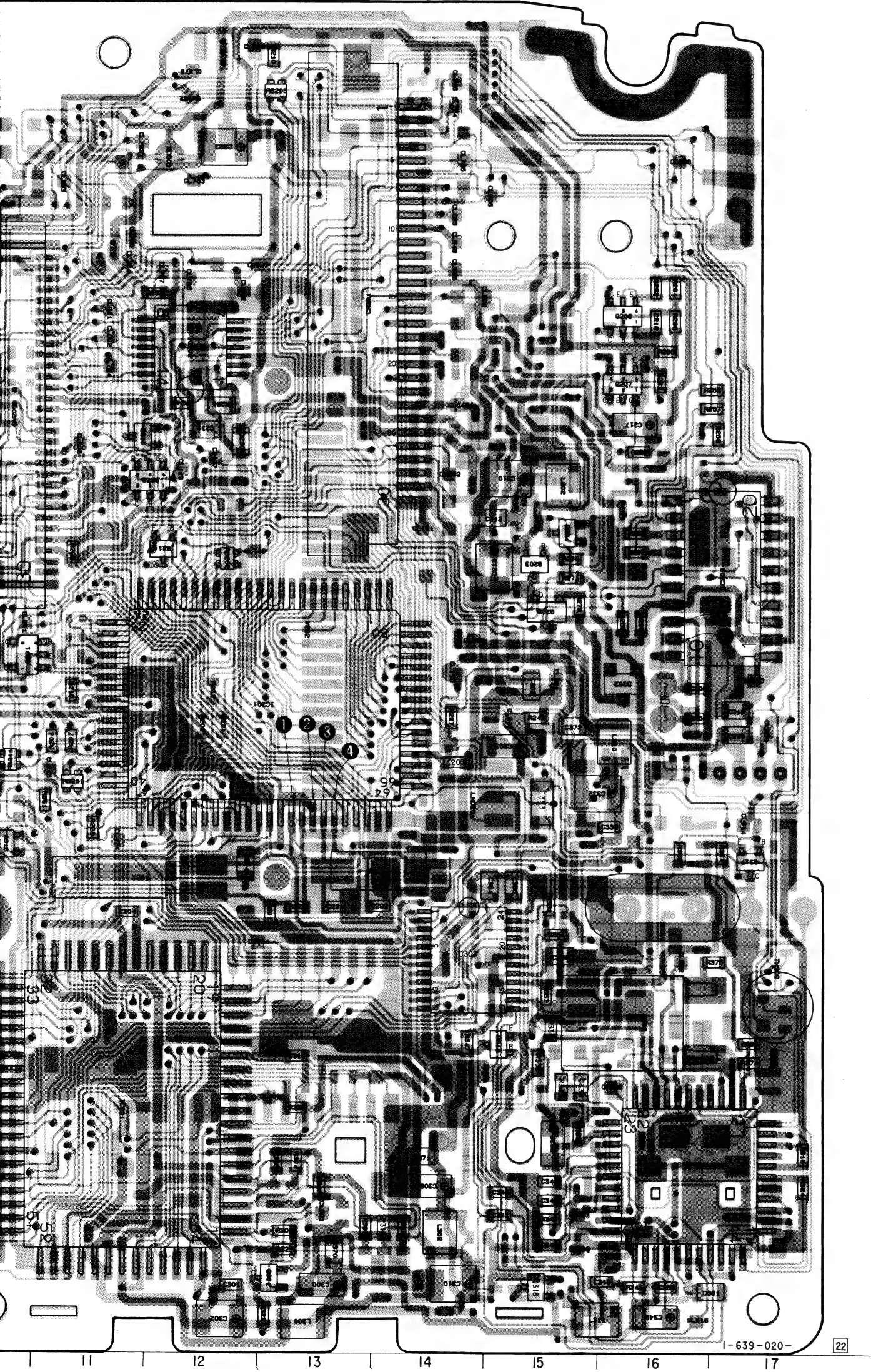
FD-44 BOARD (CONDUCTOR SIDE)



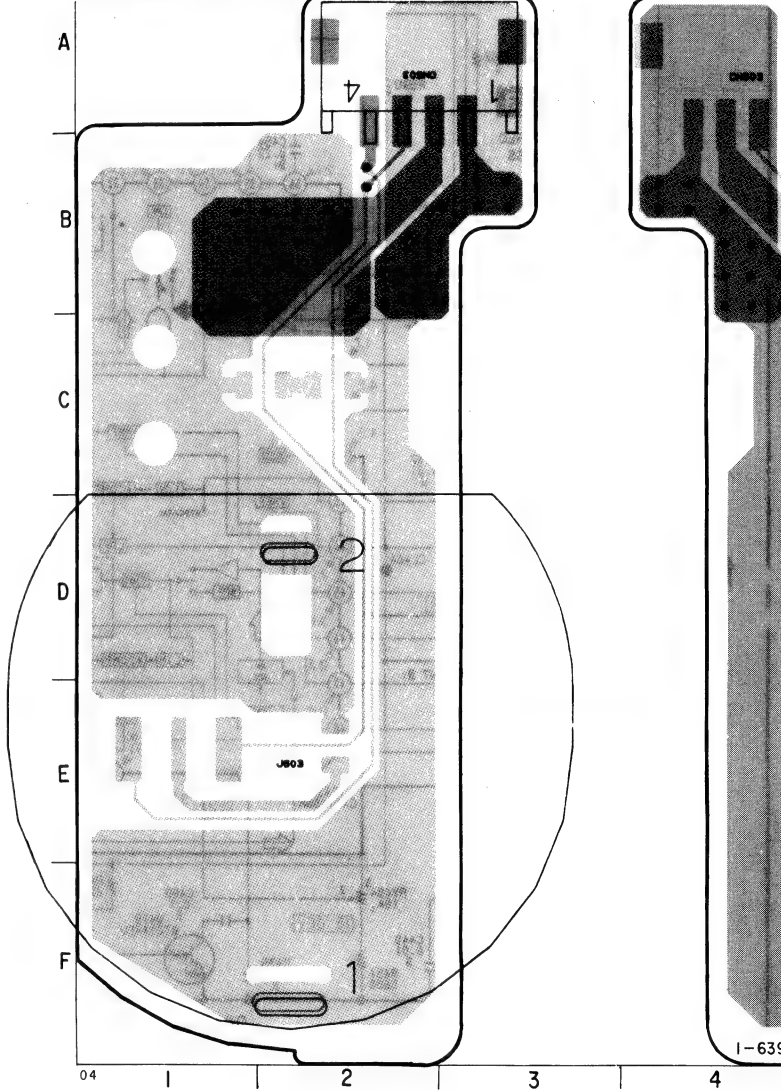
4-20 FMA2	Q311	8-729-905-35	2SC4081-R
5-18 DTC144EU	Q312	8-729-905-35	2SC4081-R
5-24 2SA1576-S	Q313	8-729-905-18	DTC144EU
5-15 DTC144WU	Q314	8-729-905-35	2SC4081-R
9-44 2SK94	Q315	8-729-905-18	DTC144EU
2-78 XN6401	Q317	8-729-905-24	2SA1576-S
2-19 XN6501	Q318	8-729-905-24	2SA1576-S
2-78 XN6401	Q319	8-729-905-35	2SC4081-R
3-10 XN6215			
5-XX DTC114TU			
0-66 2SC1623			
5-XX DTC114TU			
5-18 DTC144EU			
5-12 DTA144EU			
5-91 DTC115EU			

), FP-376 (REMOTE COMMAND RECIEVER, REC SWITCH) PRINTED WIRING BOARDS

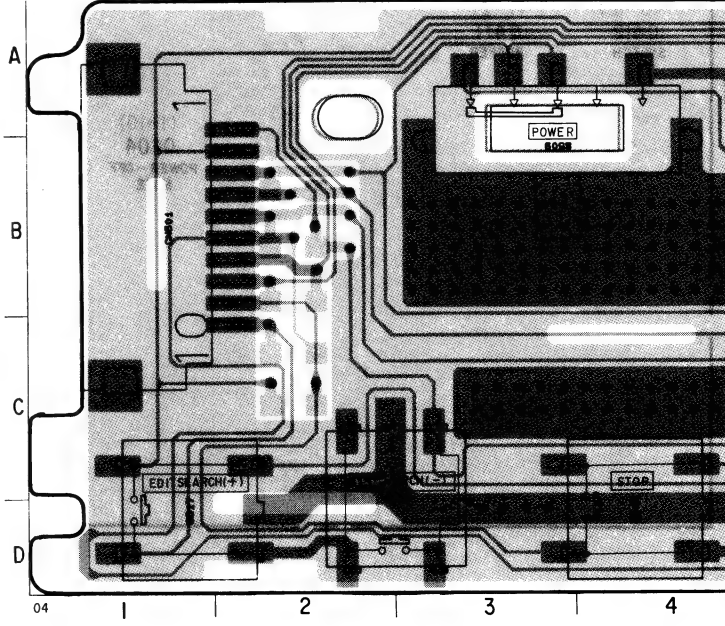
-44 BOARD (CONDUCTOR SIDE)

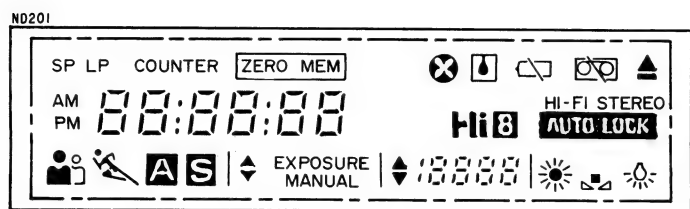
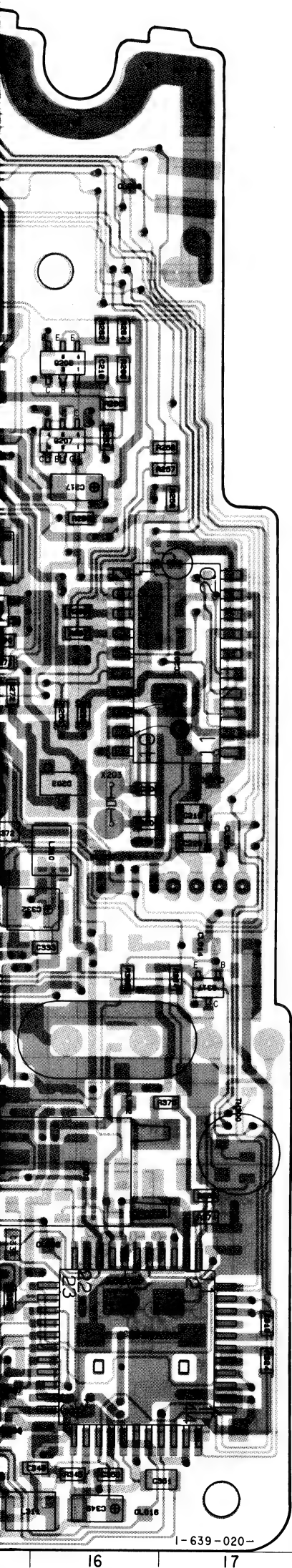


LI-33 BOARD (COMPONENT SIDE)

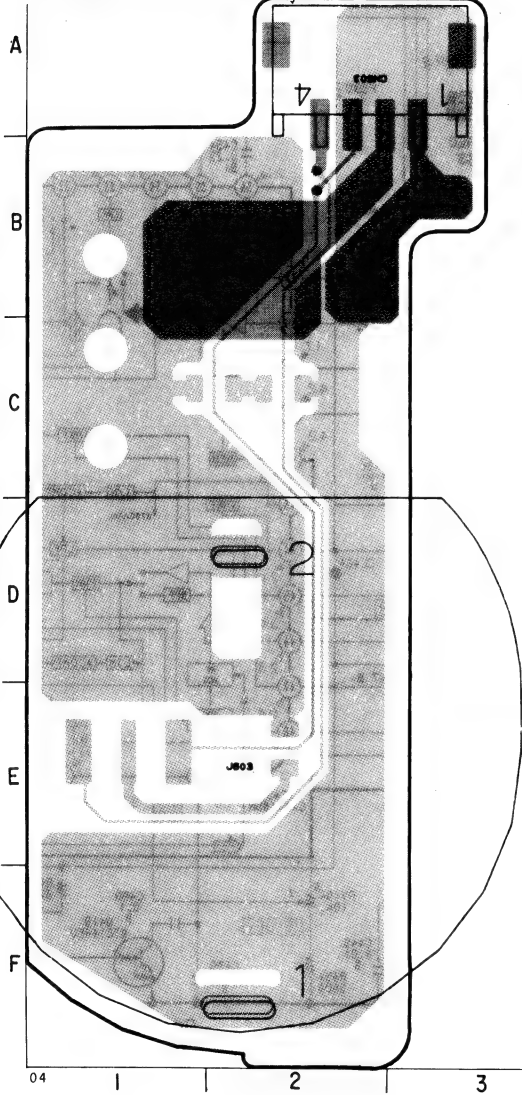


FK-47 BOARD (COMPONENT SIDE)

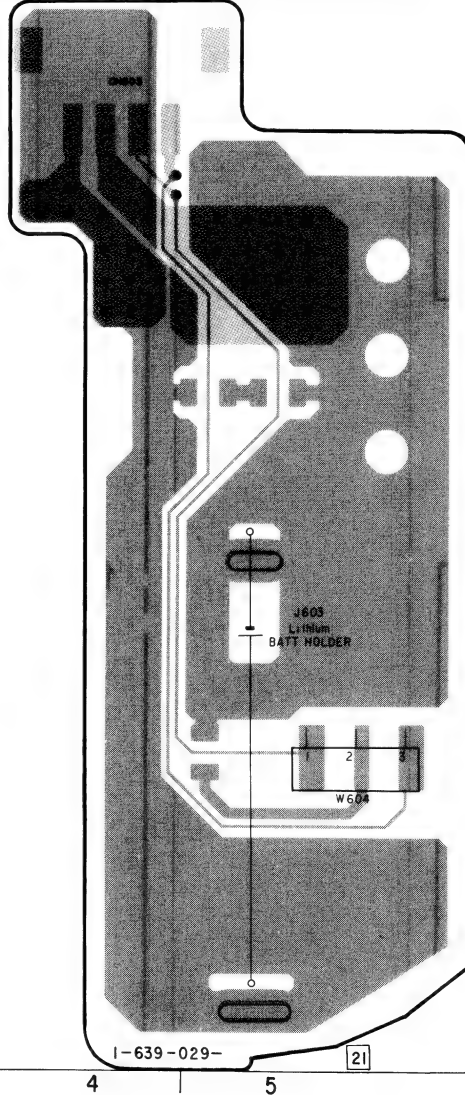




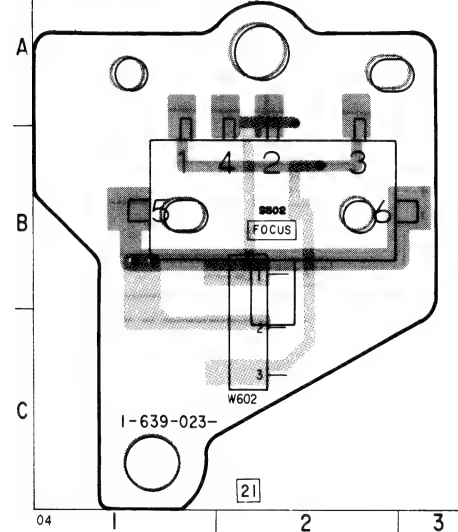
LI-33 BOARD (COMPONENT SIDE)



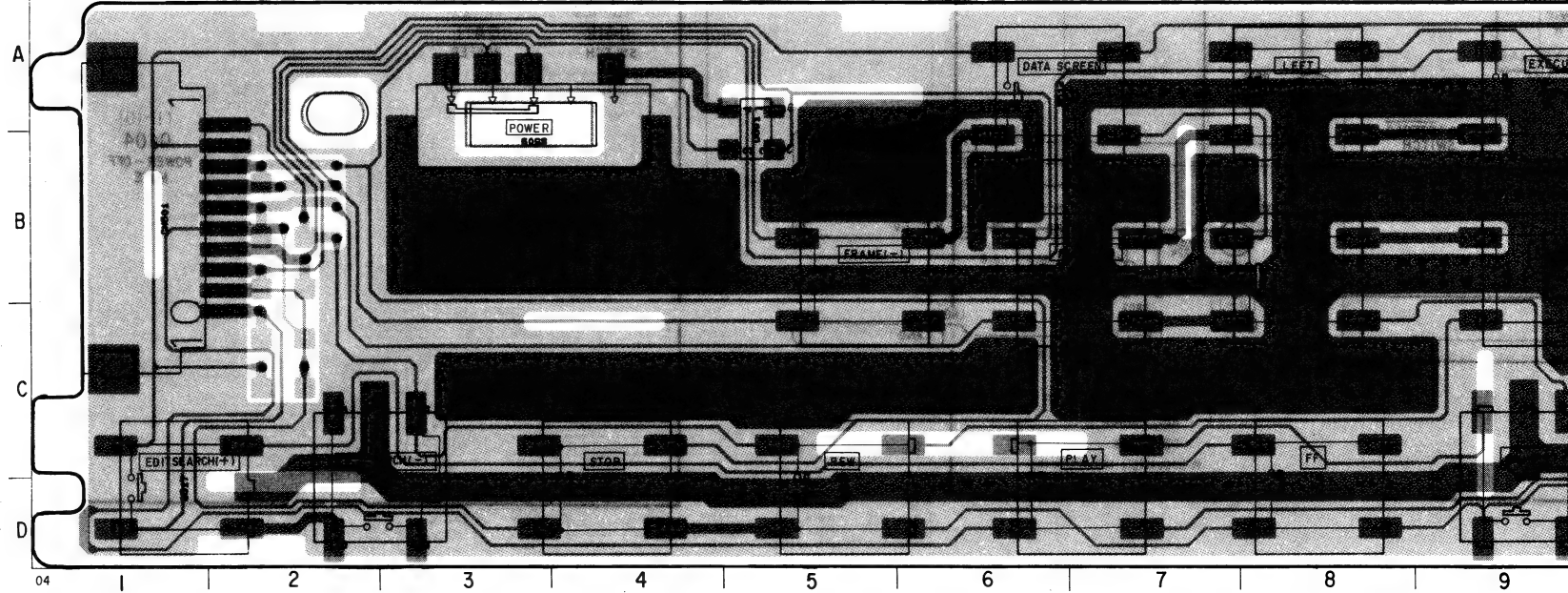
LI-33 BOARD (CONDUCTOR SIDE)



FA-2 BOARD (COMPONENT SIDE)

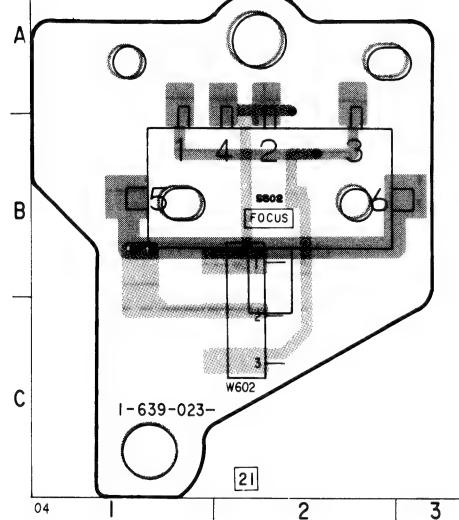


FK-47 BOARD (COMPONENT SIDE)



< DIODE >
D501 8-719-

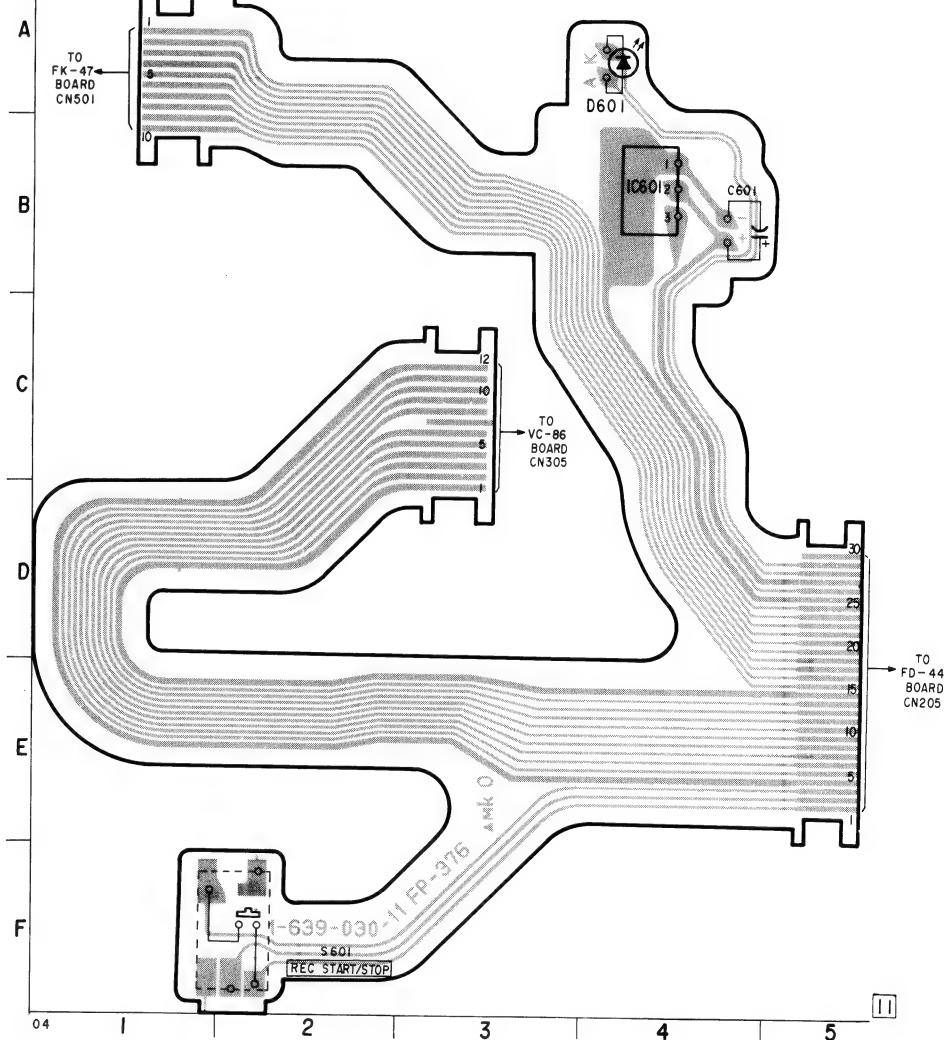
FA-2 BOARD
(COMPONENT SIDE)



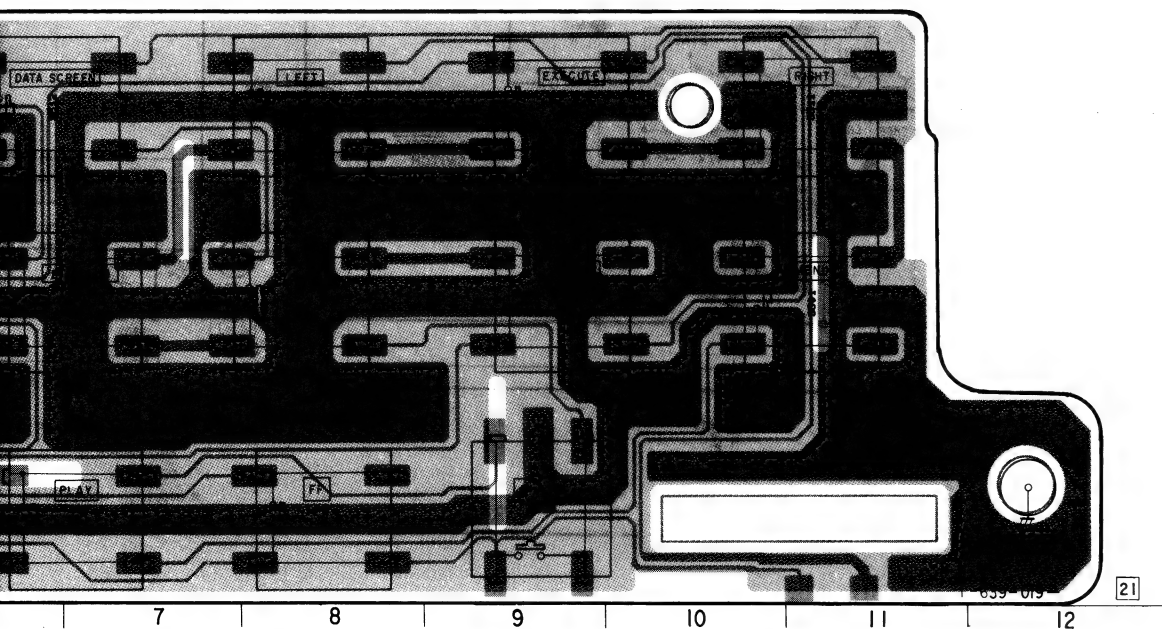
< DIODE >
D601 8-719-812-41 TLR124, RED

< IC >
IC601 8-741-100-63 SBX1619-51

FP-376 FLEXIBLE BOARD

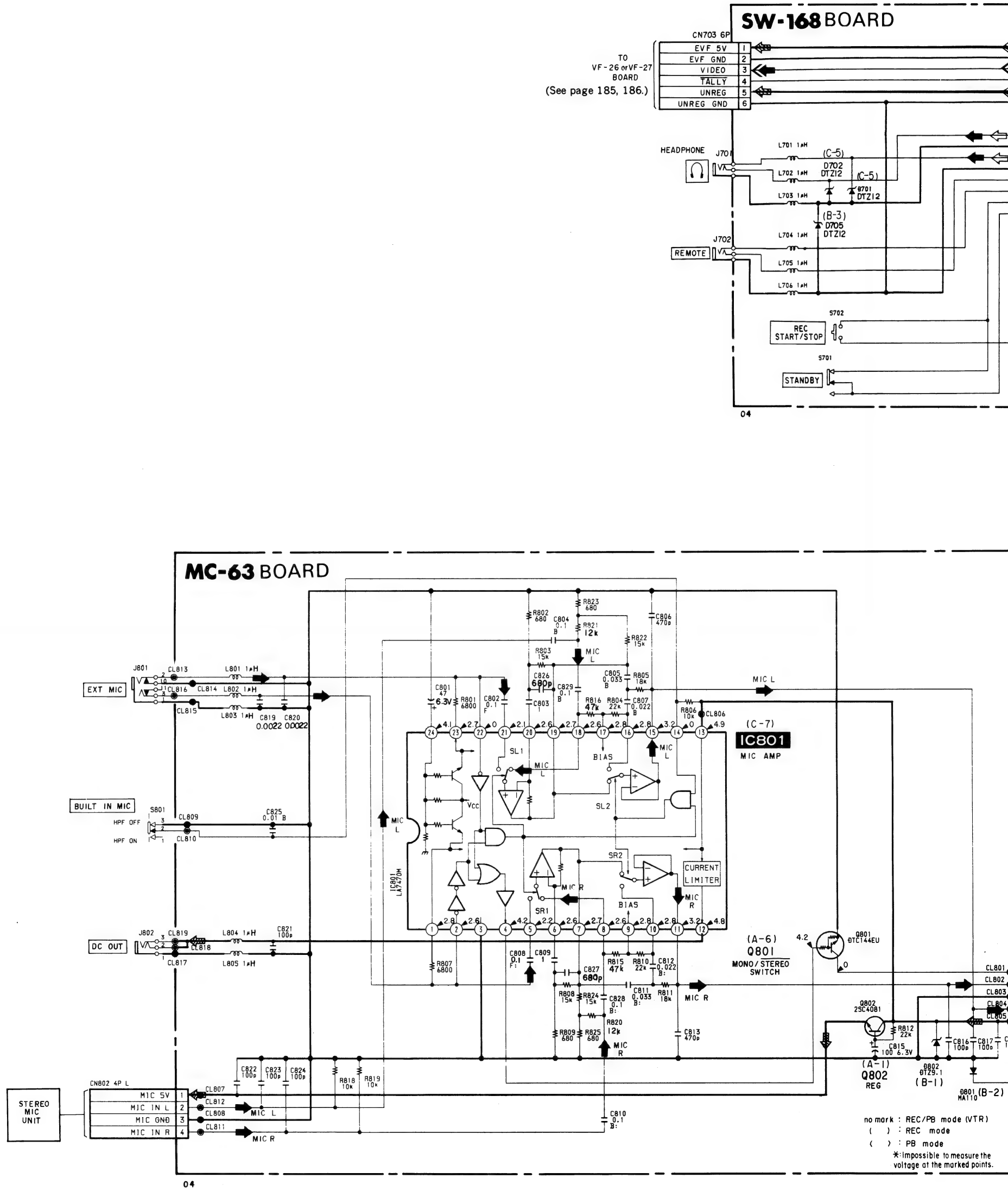


< DIODE >
D501 8-719-940-45 MA159

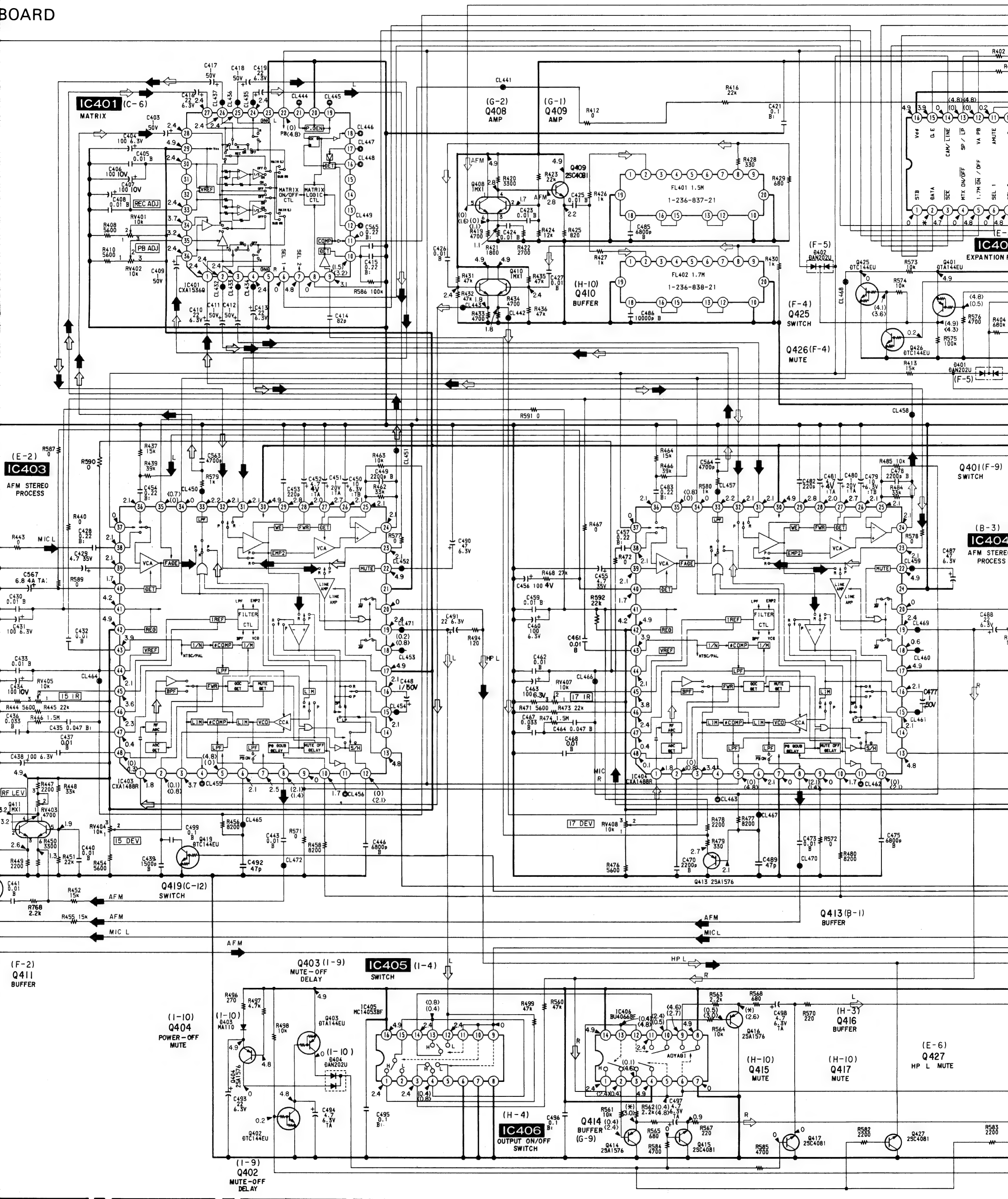


1 2 3 4 5 6 7 8 9 10 11

A
B
C
D
E
F
G
H
I
J
K
L
M
N
O





BOARD





Signal path

	REC	REC/PB	PB
Ref. signal			

AU-99 (AUDIO PROCESS), MC-63 (MIC AMP), SW-168 (CAMERA REC SWITCH) PRINTED WIRING BOARDS
 —Ref. No. AU-99, MC-63, SW-168 BOARDS: 6000 series—

< DIODE >

D401	8-719-941-86	DAN202U
D402	8-719-941-86	DAN202U
D403	8-719-404-46	MA110
D404	8-719-941-86	DAN202U
D406	8-719-977-22	DTZ9.1

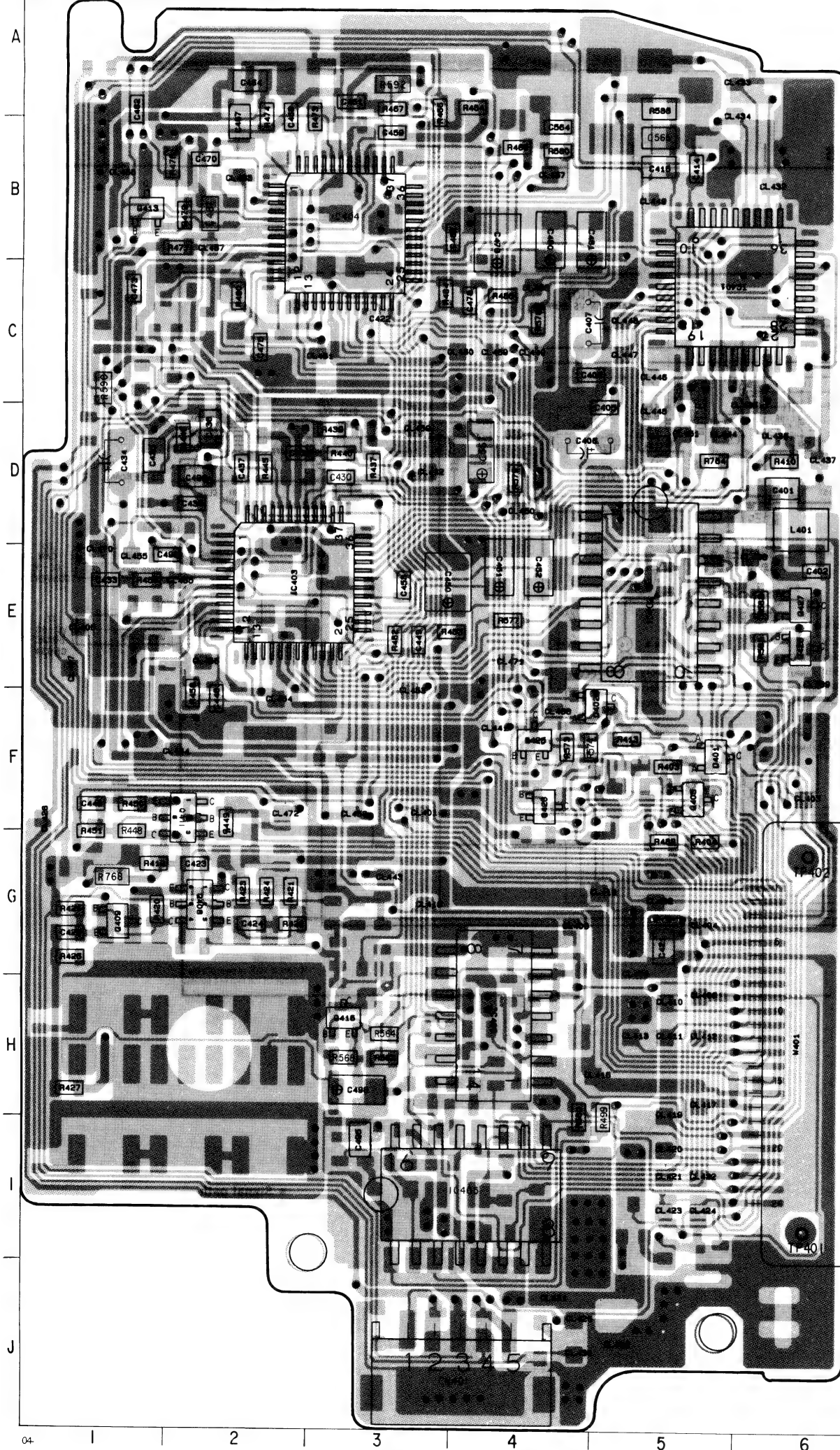
< IC >

IC401	8-759-823-21	CXA-1536Q
IC402	8-759-009-22	MC14094BF
IC403	8-759-823-19	CXA-1488R
IC404	8-759-823-19	CXA-1488R
IC405	8-759-300-71	HD14053BF
IC406	8-759-008-67	MC14066BF

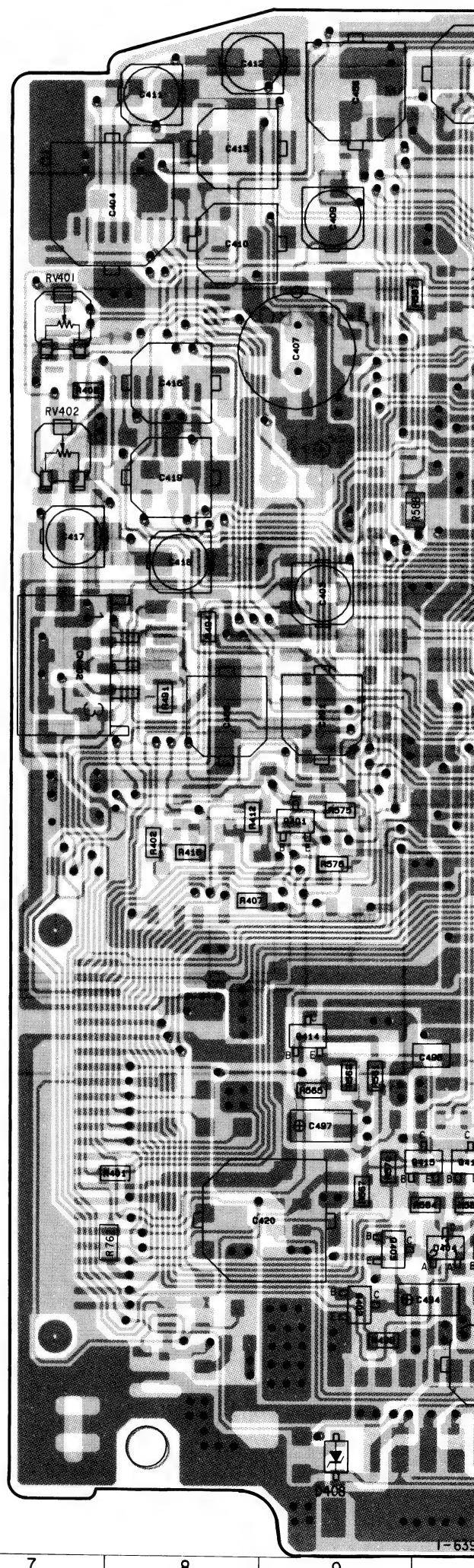
< TRANSISTOR >

Q401	8-729-905-12	DTA144EU	Q413	8-729-905-23	2SA1576-R
Q402	8-729-905-18	DTC144EU	Q414	8-729-905-23	2SA1576-R
Q403	8-729-905-12	DTA144EU	Q415	8-729-905-35	2SC4081-R
Q404	8-729-905-23	2SA1576-R	Q416	8-729-905-23	2SA1576-R
Q405	8-729-905-23	2SA1576-R	Q417	8-729-905-35	2SC4081-R
Q408	8-729-907-26	IMX1	Q419	8-729-905-18	DTC144EU
Q409	8-729-905-35	2SC4081-R	Q425	8-729-905-18	DTC144EU
Q410	8-729-907-26	IMX1	Q426	8-729-905-18	DTC144EU
Q411	8-729-907-26	IMX1	Q427	8-729-905-35	2SC4081-R
Q412	8-729-905-18	DTC144EU	Q428	8-729-905-35	2SC4081-R

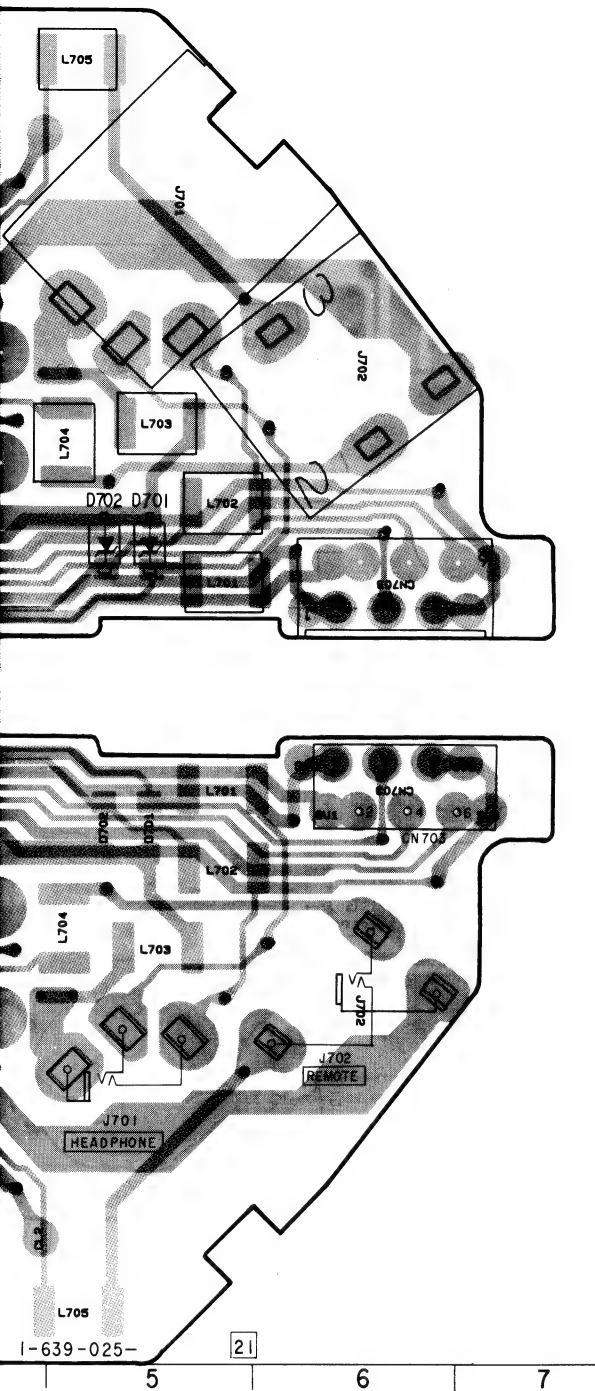
AU-99 BOARD (CONDUCTOR SIDE)



AU-99 BOARD (COMPONENT SIDE)

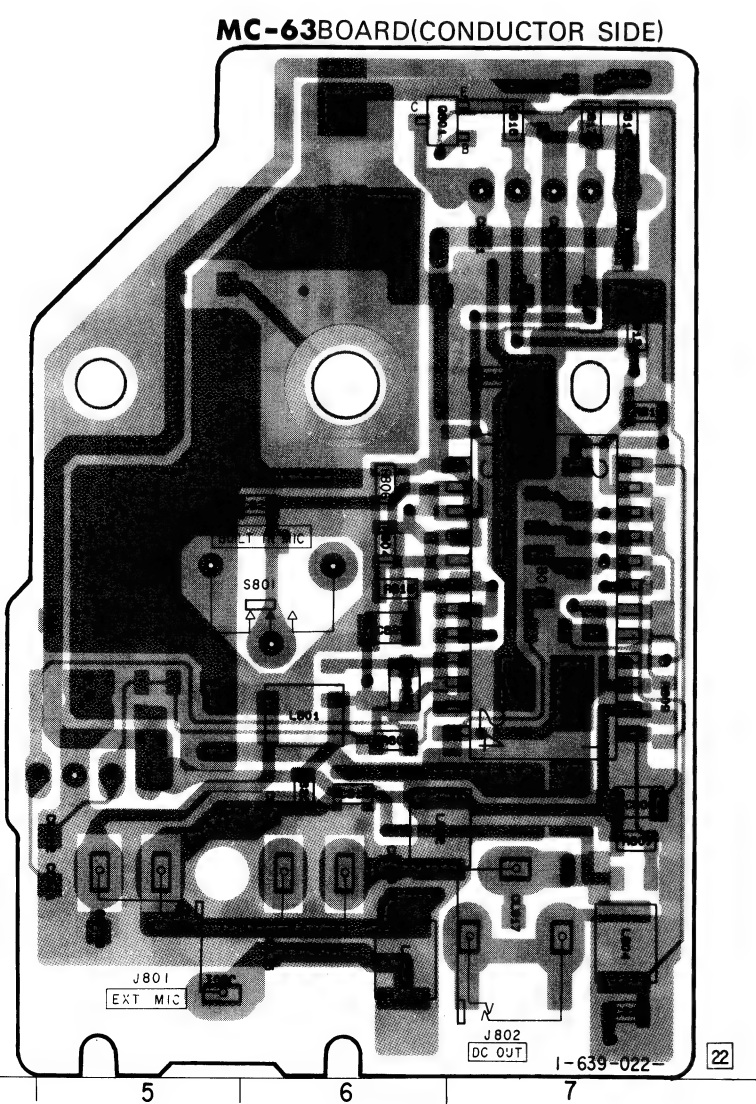


Q419	8-729-905-18	DTC144EU
Q425	8-729-905-18	DTC144EU
Q426	8-729-905-18	DTC144EU
Q427	8-729-905-35	2SC4081-R
Q428	8-729-905-35	2SC4081-R



< DIODE >

D701 8-719-977-34 DTZ12
 D702 8-719-977-34 DTZ12
 D705 8-719-977-34 DTZ12



< DIODE >

D801 8-719-404-46 MA110
 D802 8-719-977-22 DTZ9.1

< IC >

IC801 8-759-823-42 LA7470M

< TRANSISTOR >

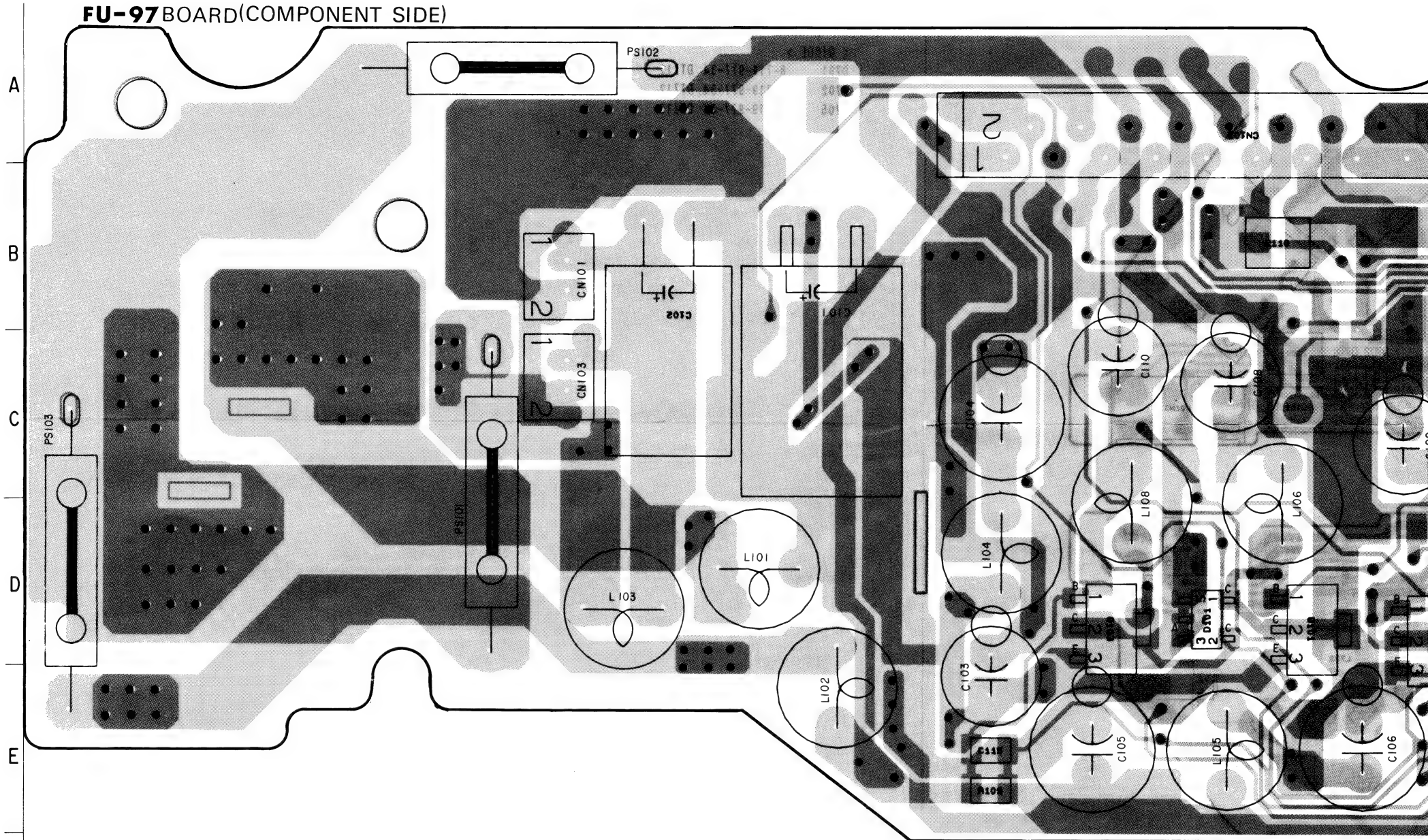
Q801 8-729-905-18 DTC144EU
 Q802 8-729-905-35 2SC4081-R

FU-97 (POWER) PRINTED WIRING BOARD
 —Ref. No. FU-97 BOARD: 7000 series—

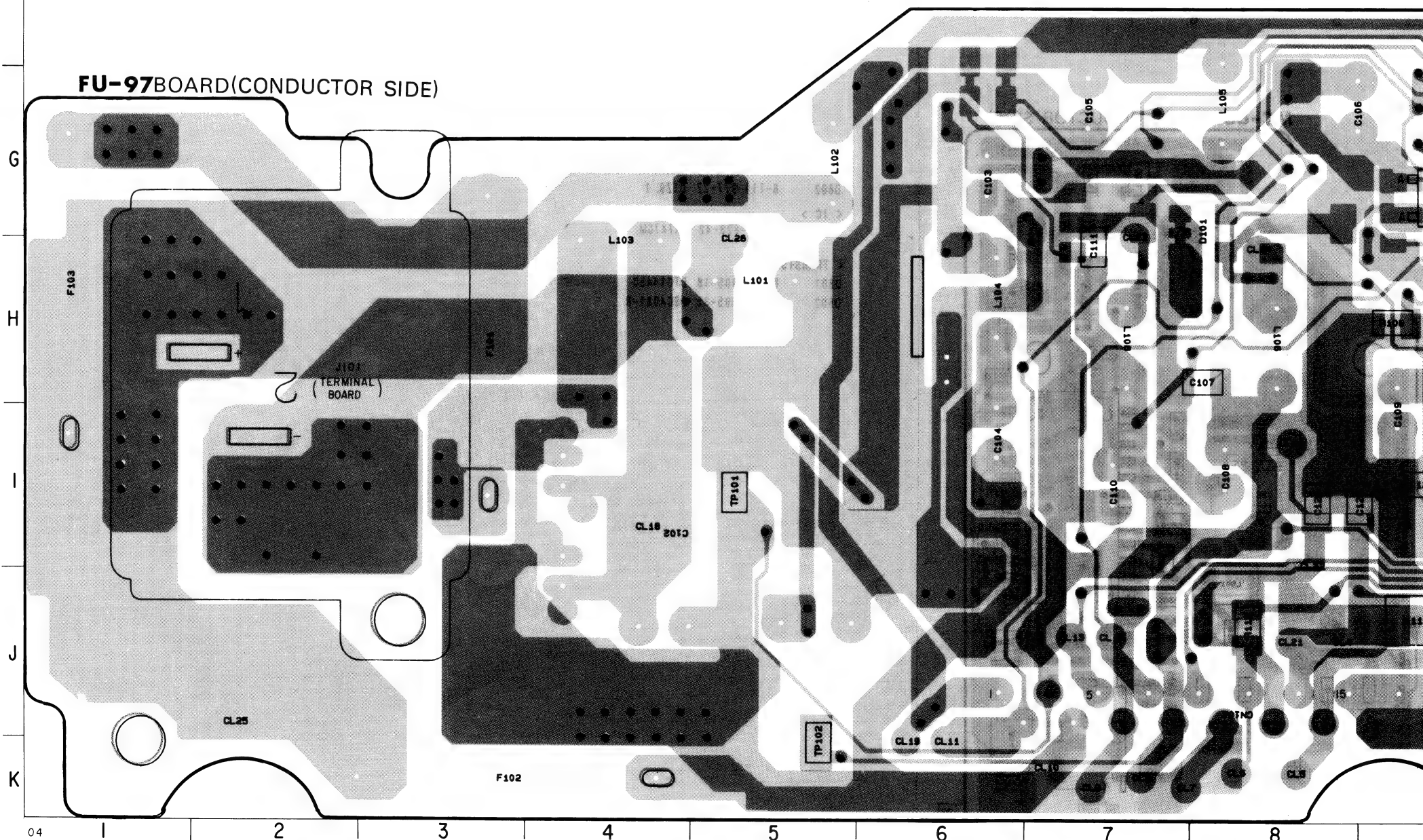
< DIODE >
 D101 8-719-981-59 FC805
 D102 8-719-981-56 SB05W05C-P
 D103 8-719-922-21 AR2222S
 < IC >
 IC101 8-759-035-98 MC141600FU

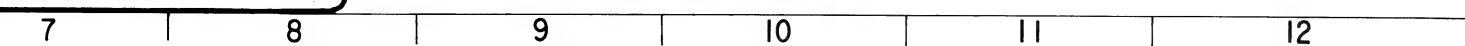
< TRANSISTOR >
 Q101 8-729-805-25 2SB1121
 Q102 8-729-822-60 2SB1302
 Q103 8-729-805-25 2SB1121

FU-97 BOARD (COMPONENT SIDE)

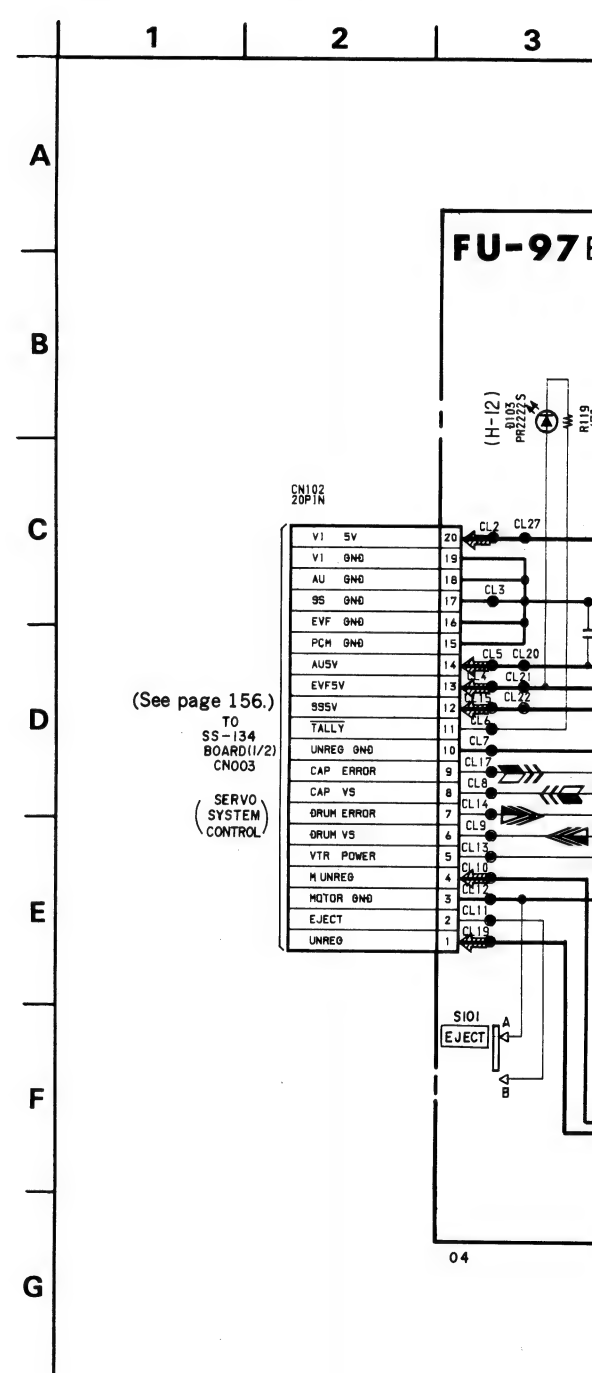


FU-97 BOARD (CONDUCTOR SIDE)



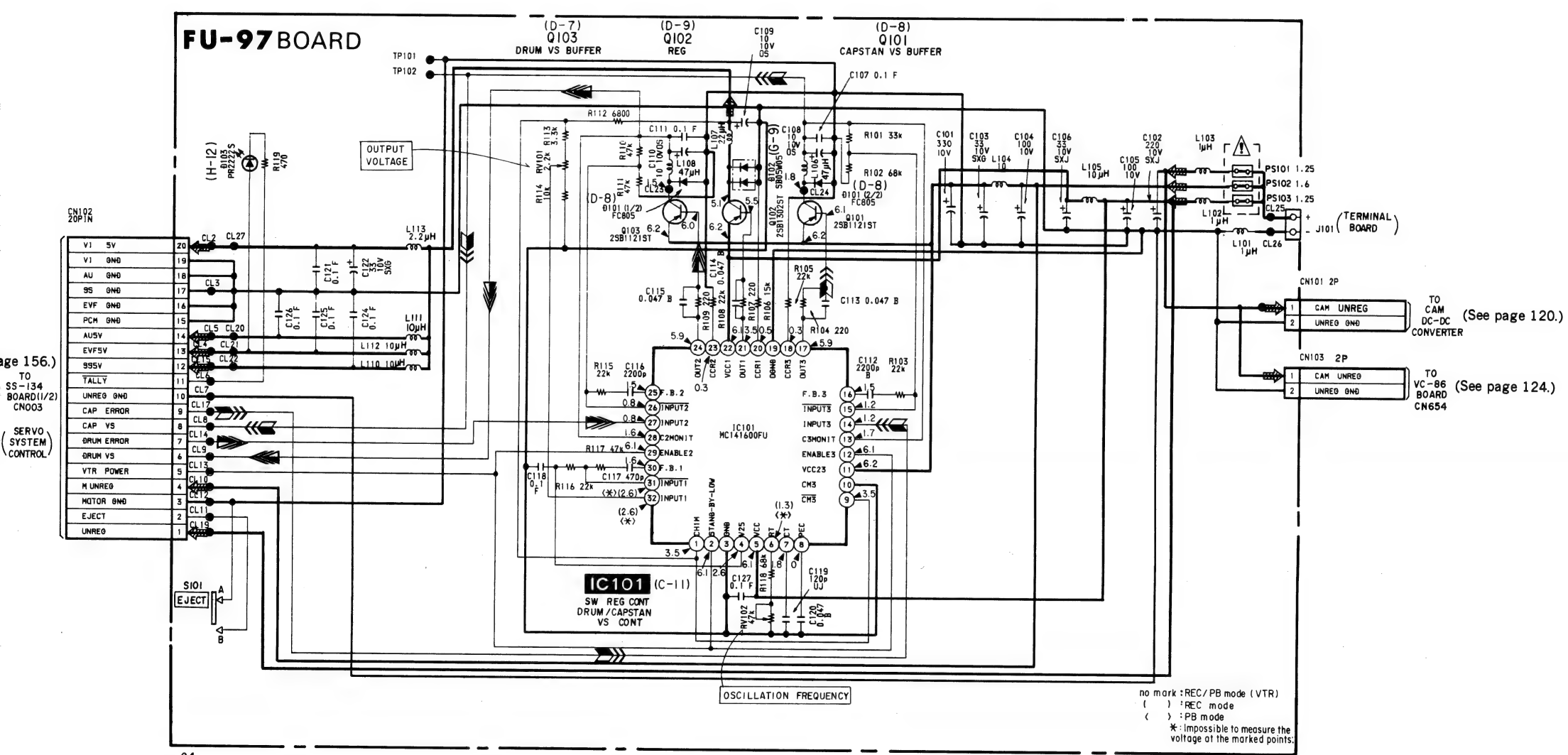


FU-97 (POWER) SCHEMATIC DIAGRAM
—Ref. No. FU-97 BOARD: 7000 series—



VER) SCHEMATIC DIAGRAM
U-97 BOARD: 7000 series—

2 3 4 5 6 7 8 9 10 11 12 13

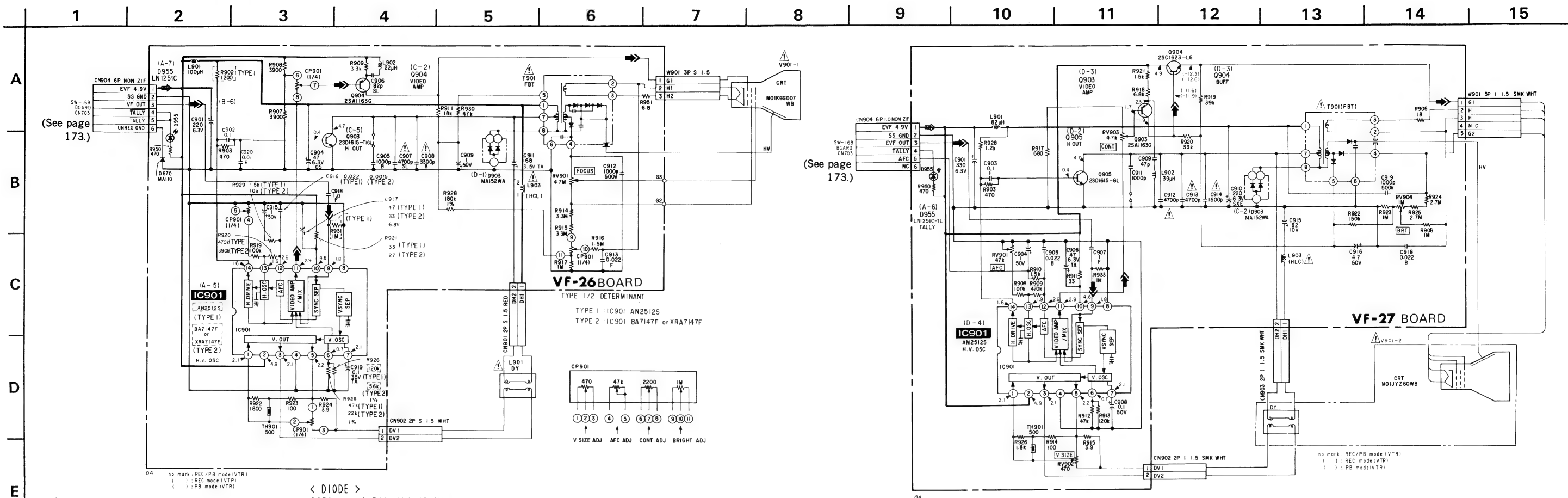


• Signal path

	REC	REC/PB	P
Drum speed servo		▶	
Drum phase servo		▶▶	
Drum servo(speed and phase)		▶▶▶	
Capstan speed servo		▶	
Capstan phase servo	▶▶	▶▶	Σ
Capstan servo(speed and phase)		▶▶▶	

VF-26, VF-27 (VIEWFINDER) PRINTED WIRING BOARD AND SCHEMATIC DIAGRAM

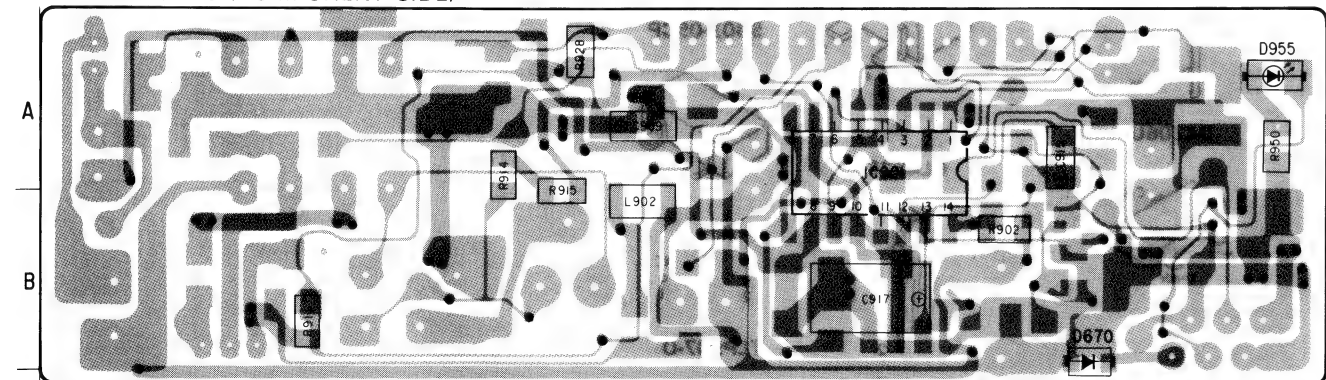
—Ref. No. VF-26 BOARDS: 8000 series, VF-27 BOARD: 9000 series—



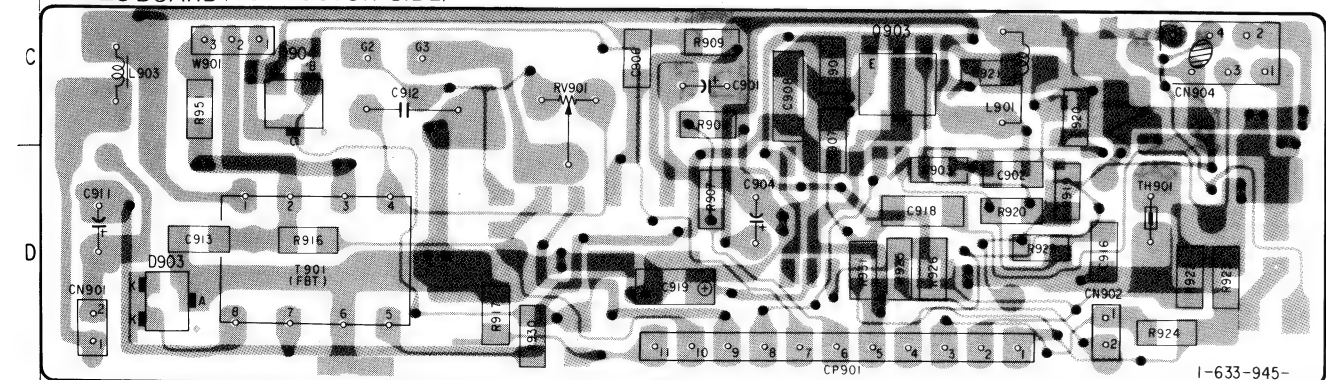
• Signal path

	VIDEO Signal		
	CHROMA	Y	Y/CHROMA
REC	→	→	→
PB	→	→	→

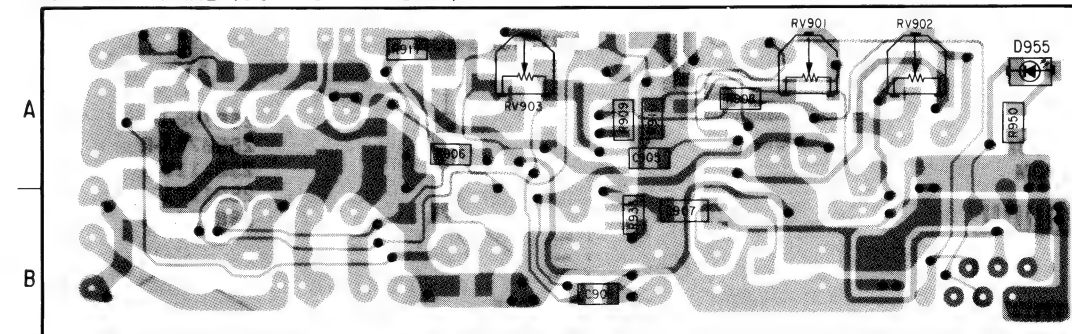
VF-26 BOARD (COMPONENT SIDE)



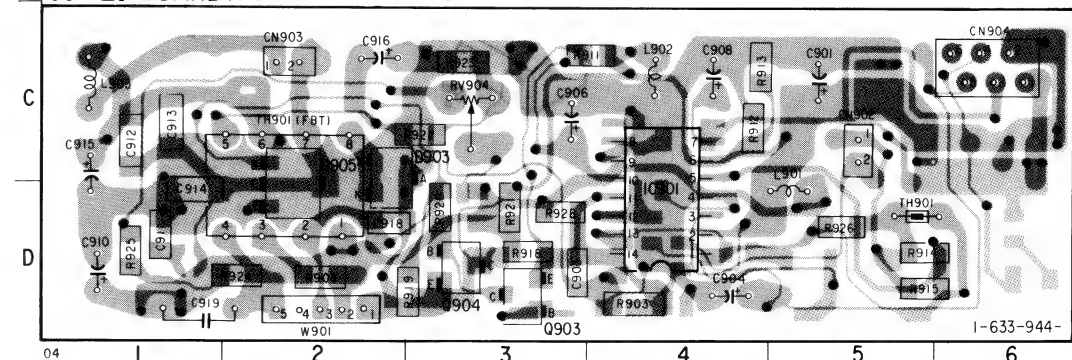
VF-26 BOARD (CONDUCTOR SIDE)



VF-27 BOARD (COMPONENT SIDE)



VF-27 BOARD (CONDUCTOR SIDE)

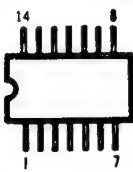


4-3. SEMICONDUCTORS

BA401

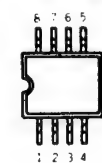


BA7147F
BU4066BF
CX20095A
CXA1443N
CXA8010M
LM324D
MC14066BF
TL1596CDB
XRA7147F
XRU4066BF



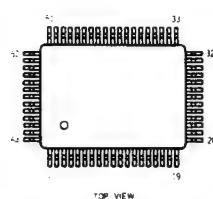
(TOP VIEW)

BR93C46F
CXL1506F
HA118070FP
LM358D
LM393D
MM1036XF
NJM2233AM
NJM2234M
NJM2235M
RC3414M



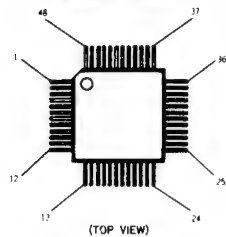
(TOP VIEW)

CF79028PG



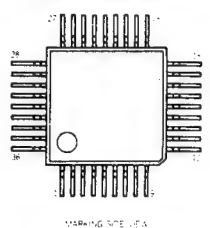
TOP VIEW

CXA-1488R
CXA1208R
CXA1392R
MB673198U

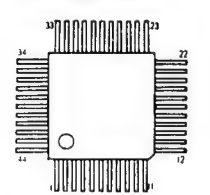


(TOP VIEW)

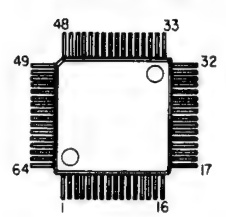
CXA-1536Q



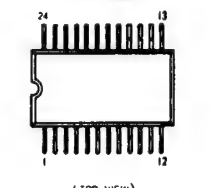
CXA1204Q
M512858GP



CXA1207AR
MC68HC11E9FU

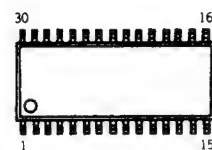


CXA1203N
CXA1393AN
LA7470M



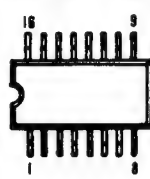
(TOP VIEW)

CXA8006M



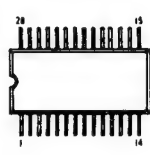
(TOP VIEW)

CXD-2107M
HD14053BF
MC14028BF
MC14053BF
TC4028BF
MC10H116M



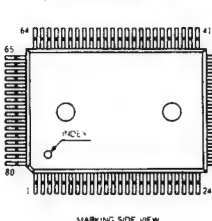
(TOP VIEW)

CXK58257M-10L



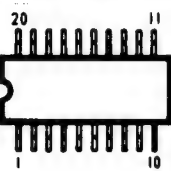
(TOP VIEW)

CXP80116-837Q
MC14094BF
μPD75316GF



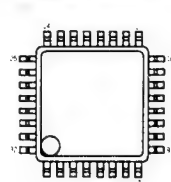
MARKING SIDE VIEW

M62352GP
μPD6451AGT-611-E1
μPD7564G-540

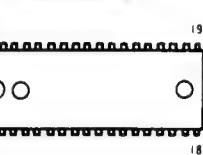


(TOP VIEW)

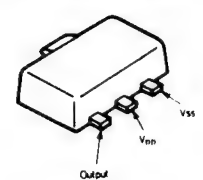
MC141600FU



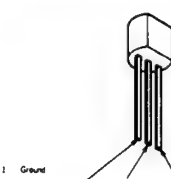
MCD002AM



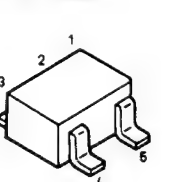
S-8054ALB-LM-S



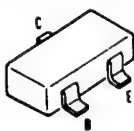
S-81250HG-RD-S



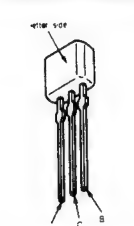
TC7S08F



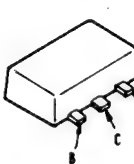
2SA1122-CD
2SA1162-G
2SA1163-G
2SA1576-R
2SA1576-S
2SA1611-M5M6
2SB624-BV345
2SC1623
2SC2223-F13
2SC3326N
2SC4081-R
2SC4081-S
2SC4177-L5
2SC4178
2SK1332-3
DTA114TU
DTA143EU
DTA144EU
DTA144TU
DTC114EU
DTC114TU
DTC115EU
DTC143EU
DTC143TU
DTC144EU
DTC144TU
DTC144WU



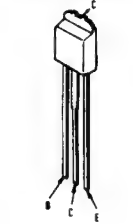
2SA1175-HFE



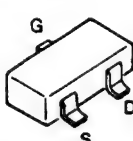
2SB798-DL
2SB874A-R
2SB1115A
2SB1121
2SB1302-S



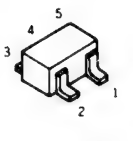
2SB1202FAT



2SK94

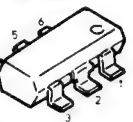


FMA2
FMG2
FMG4
FMG5
FMW1



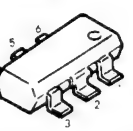
1 Tr1 : Collector 1
2 Tr2 : Collector 2
3 Tr2 : Base 2
4 Tr1, 2 : Emitter
5 Tr1 : Base 1

FC101
IMH6
IMH8
XN6213
XN6215
XN6401
XN6501



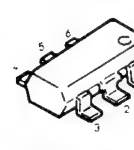
1: 1C, 2: 1B, 3: 2C,
4: 2B, 5: 2E, 6: 1E

IMX1



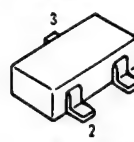
1: 1C, 2: 2B, 3: 2E,
4: 2C, 5: 1B, 6: 1E

XN4601

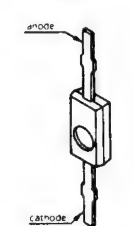


1: 1C, 2: 2B, 3: 2E,
4: 2C, 5: 1B, 6: 1E

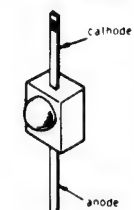
1SS226
MA143



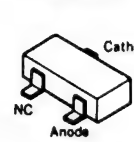
1T32



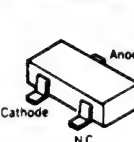
AR2222S



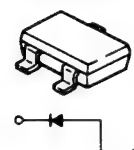
DA106U



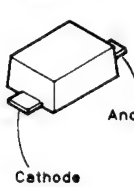
DA204U
DAN202U
MA151A



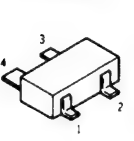
DAP202U



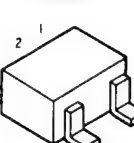
DTZ12
DTZ4. 3A
DTZ9. 1
MA110



DWA010



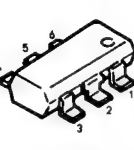
FC805



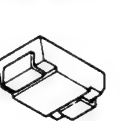
GL452S



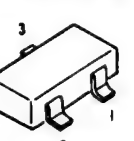
IMN10



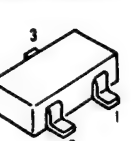
LN1251C



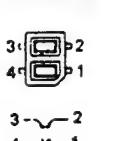
MA141A
MA141WA
MA152WA
SB05W05CP



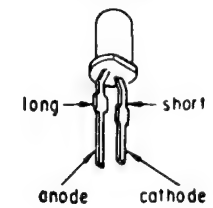
SB01-05CP



TLP907-O



TLP124



SECTION 5 EXPLODED VIEWS

NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

- -XX, -X mean standardized parts, so they may have some differences from the original one.

- Color Indication of Appearance Parts
Example:

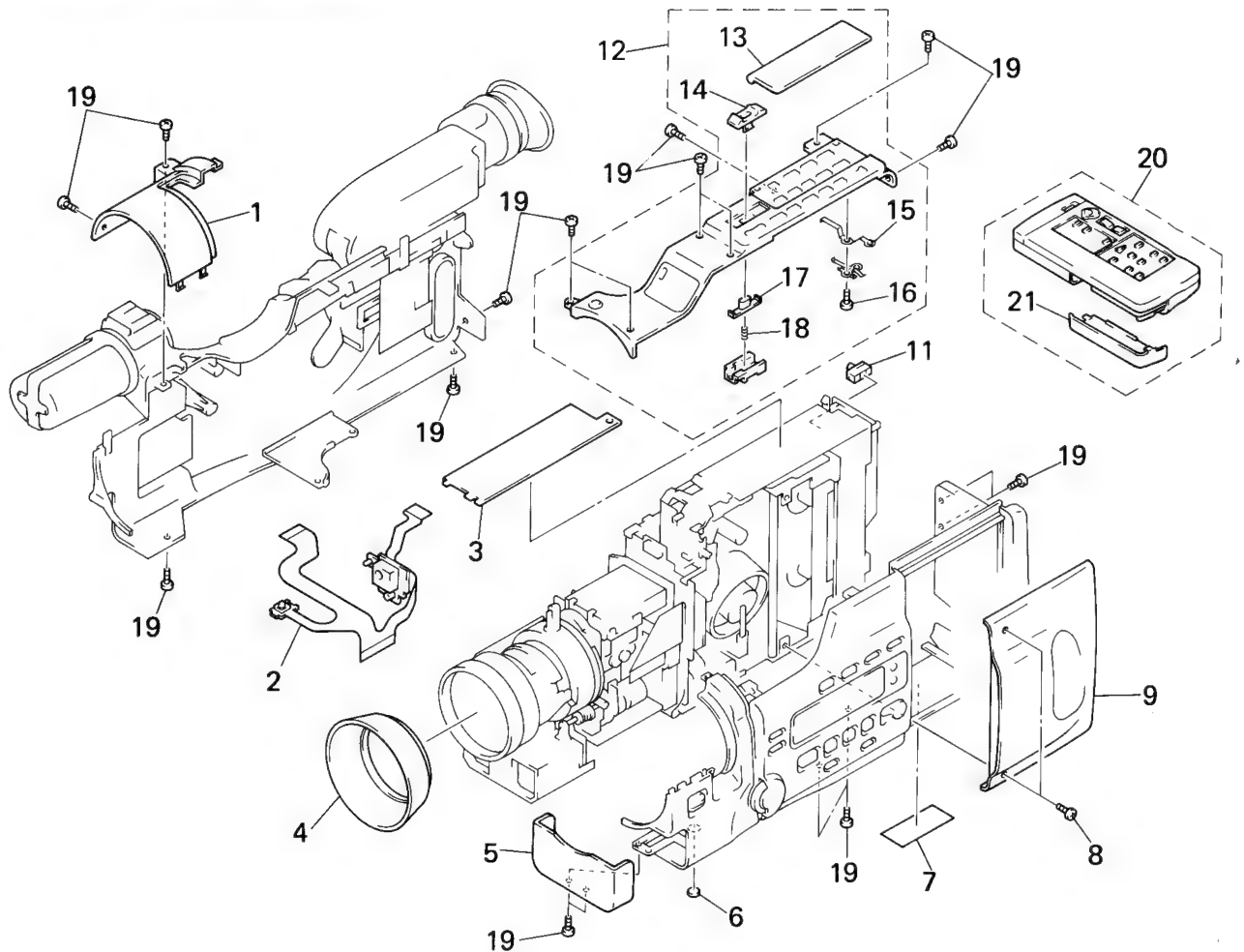
KNOB, BALANCE (WHITE)...(RED)

Parts Color Cabinet's Color

- Hardware(# mark) list is given in the last of this parts list.

The components identified by mark or dotted line with mark are critical for safety. Replace only with part number specified.

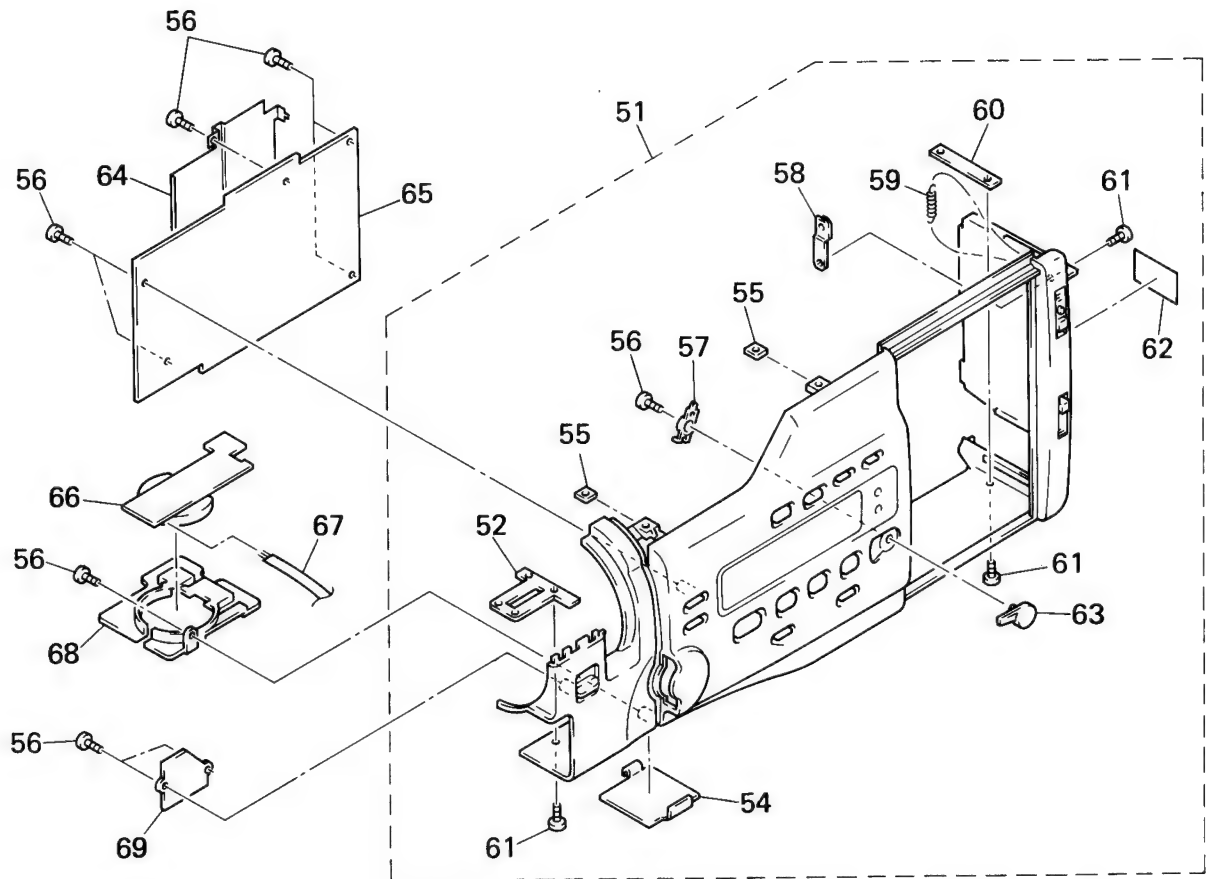
5-1. CABINET (UPPER) ASSEMBLY



Ref. No.	Part No.	Description	Remark
1	3-942-213-01	CABINET, LENS	
2	1-639-030-11	FP-376 FLEXIBLE BOARD	
3	* A-7071-434-A	FK-47 BOARD, COMPLETE	
4	3-739-844-01	HOOD, LENS	
5	X-3940-763-1	FILTER ASSY	
6	3-942-193-01	CAP, AF	
7	* 3-942-777-01	LABEL, MODEL NUMBER (AEP)	
	* 3-943-100-01	LABEL, MODEL NUMBER (UK)	
8	3-733-912-11	SCREW (M2X4.5), SPECIAL HEAD	
9	X-3940-672-1	LID ASSY, CASSETTE	
11	3-744-743-01	KNOB, 10 SELECTION	

Ref. No.	Part No.	Description	Remark
12	X-3940-673-1	CABINET (UPPER) ASSY	
13	3-744-750-01	LID, UPPER	
14	3-744-723-01	BUTTON (10), POWER	
15	3-744-732-01	SPRING, CLICK	
16	3-713-790-11	SCREW (M2X5), TAPPING, P3	
17	* 3-718-257-11	BUTTON, PUSH, POWER	
18	3-303-973-00	SPRING, COMPRESSION	
19	3-719-381-01	SCREW (M2X4)	
20	1-465-395-81	COMMANDER., REMOTE (RMT-502)	
21	3-742-854-01	COVER, BATTERY	

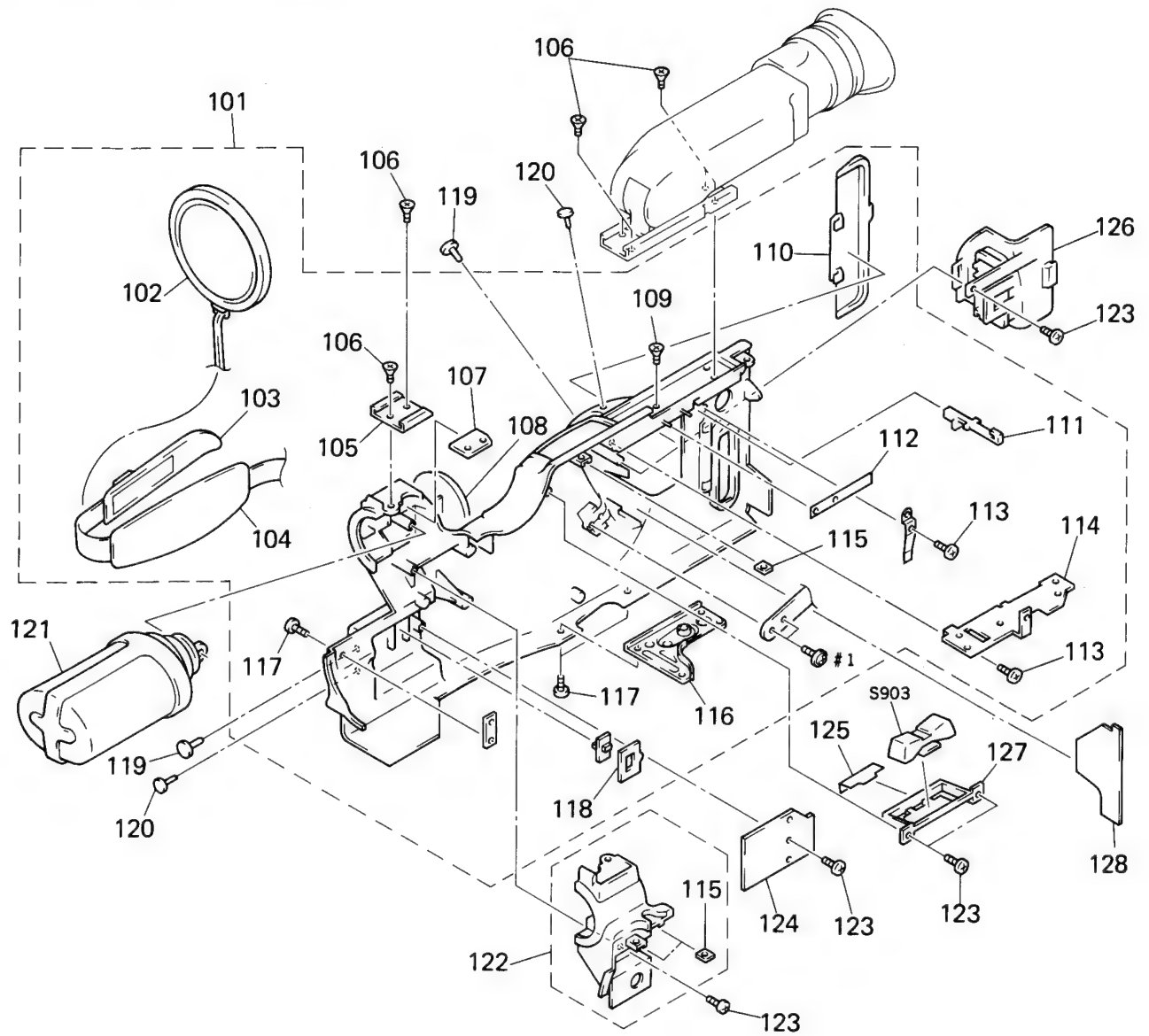
5-2. CABINET (RIGHT) ASSEMBLY



Ref. No.	Part No.	Description	Remark
51	X-3940-495-1	CABINET (R) SUB ASSY	
52	3-942-194-01	NUT, PLATE, C	
54	3-728-160-01	LID, BATTERY CASE	
55	3-718-233-01	NUT, PLATE	
56	3-713-790-11	SCREW (M2X5), TAPPING, P3	
57	3-942-189-01	LEVER, AUTOLOCK	
58	3-744-741-01	SHEET METAL, R	
59	3-674-402-00	SPRING, TENSION	
60	3-942-195-01	NUT, PLATE, V	

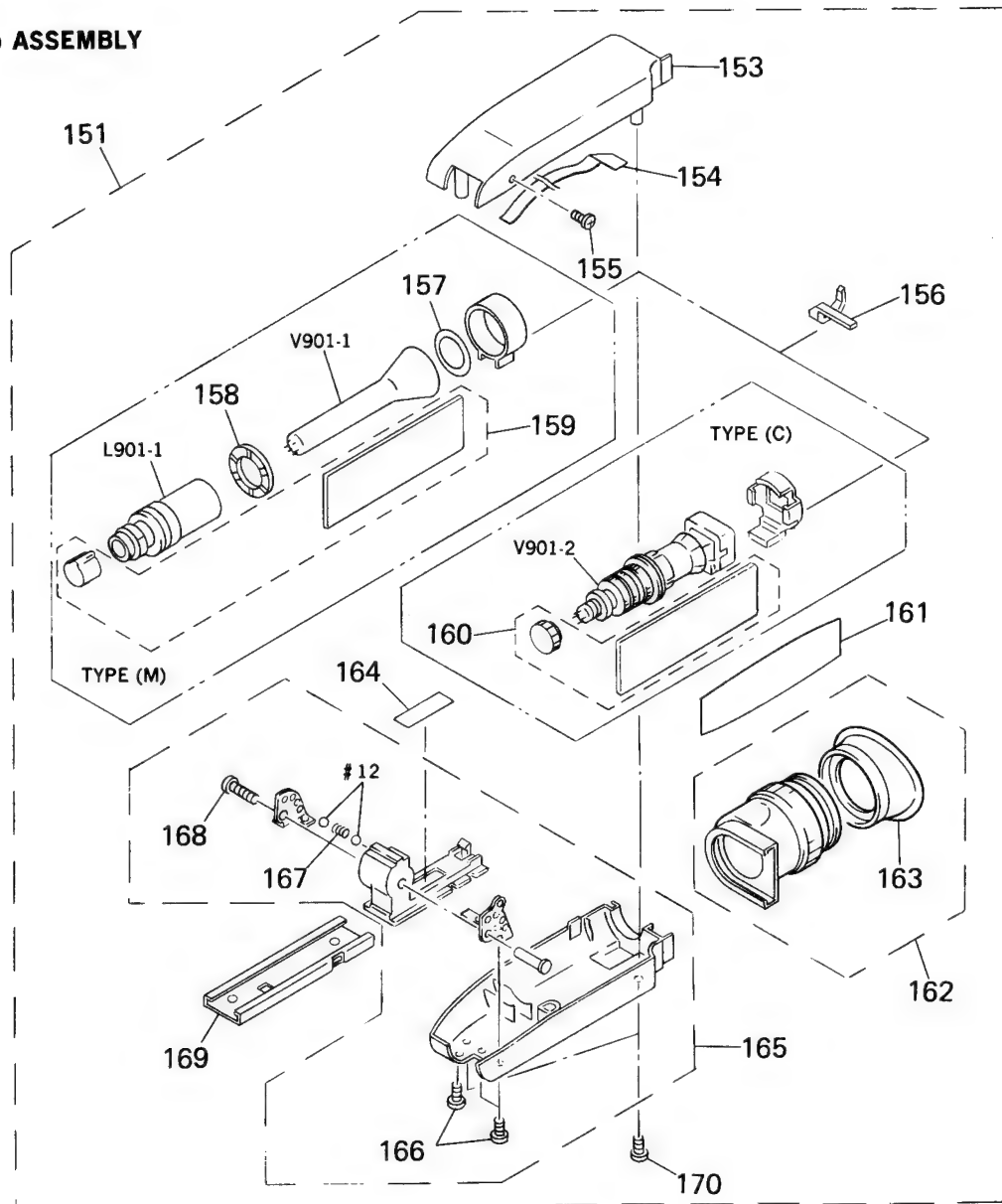
Ref. No.	Part No.	Description	Remark
61	3-744-720-11	SCREW (M2X3)	
62	* 3-719-683-01	LABEL, BATTERY FITTING	
63	3-942-192-01	KNOB, AUTOLOCK	
64	* 3-942-201-01	CASE (08), FD SHIELD	
65	* A-7062-799-A	FD-44 BOARD, COMPLETE	
66	* A-7071-435-A	LI-33 BOARD, COMPLETE	
67	1-639-101-11	FP-458 FLEXIBLE BOARD	
68	* 3-942-212-01	FRAME, CAMERA	
69	* A-7071-436-A	FA-2 BOARD, COMPLETE	

5-3. CABINET (GRIP) ASSEMBLY



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
101	X-3940-674-1	CABINET (G) SUB ASSY		116	3-942-205-01	SHEET METAL, TRIPOD	
102	X-3744-708-1	CAP ASSY, HOOD		117	3-744-720-11	SCREW (M2X3)	
103	3-739-866-81	BELT, GRIP		118	3-744-735-01	RETAINER, M	
104	3-724-591-01	PAD, GRIP		119	3-728-267-01	COVER, 3.5 JACK	
105	3-724-511-01	SHOE, ACCESSORY		120	3-728-266-01	COVER, 2.5 JACK	
106	3-742-871-11	SCREW (M2X4)		121	* 8-814-268-00	MICROPHONE C-2033 SET	
107	3-744-739-01	NUT (10), LINING PLATE		122	X-3940-491-1	CABINET ASSY, MICROPHONE	
108	3-942-183-01	CAP, MICROPHONE		123	3-713-790-21	SCREW (M2X6), TAPPING, P3	
109	3-742-871-21	SCREW (M2X3)		124	* A-7062-800-A	MC-63 BOARD, COMPLETE	
110	3-744-704-15	LID, CONNECTOR		125	* 3-746-251-01	SHEET, Z	
111	3-744-709-01	LOCK, SLIDE		126	X-3744-723-1	BASE ASSY, SP	
112	3-744-717-01	SPRING, LOCK		127	X-3744-772-1	RETAINER ASSY, Z	
113	3-713-790-11	SCREW (M2X5), TAPPING, P3		128	* A-7071-437-A	SW-168 BOARD, COMPLETE	
114	* 3-744-754-01	BRACKET, VF		S903	1-572-320-11	SWITCH, PUSH (ZOOM)	
115	3-718-233-01	NUT, PLATE					

5-4. EVF (M,C) ASSEMBLY

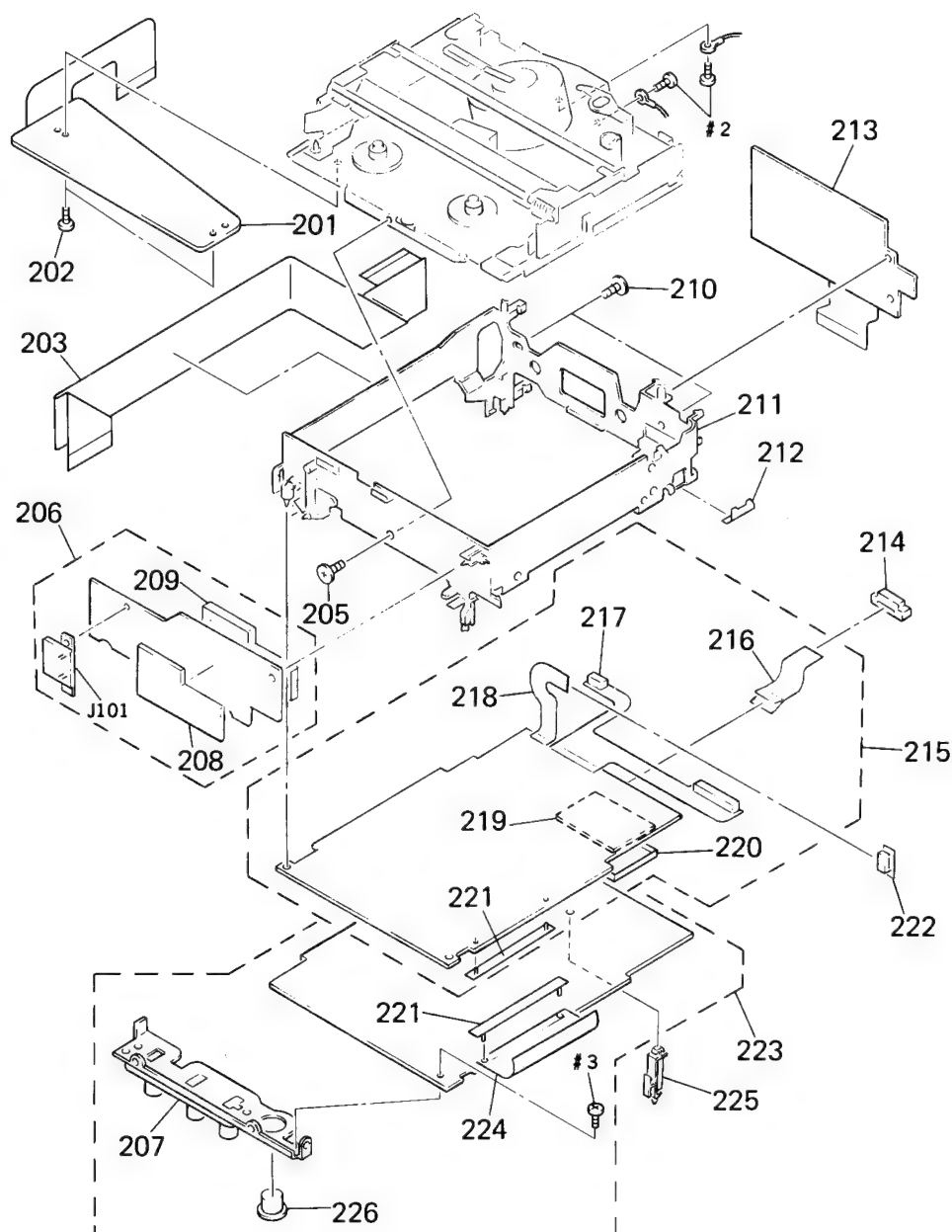


Note: The components identified by mark **A** or dotted line with mark **A** are critical for safety. Replace only with part number specified.

Ref. No.	Part No.	Description	Remark
151	A-7019-319-A	EVF (C) ASSY	
	A-7019-320-A	EVF (M) ASSY	
153	3-744-705-01	CASE, VF (UPPER)	
154	1-634-011-11	FP-264 FLEXIBLE BOARD	
155	3-744-720-11	SCREW (M2X3)	
156	3-744-722-01	GUIDE, VF TALLY	
157	3-724-570-01	RING, CRT FIXED	
158	3-724-549-01	LOCK, CRT	
159	* A-7062-278-A	VF-26 BOARD, COMPLETE	
160	* A-7062-279-A	VF-27 BOARD, COMPLETE	
161	3-744-775-01	INSULATOR, VF	
162	X-3940-369-1	FINDER (S) ASSY, SPORTS	

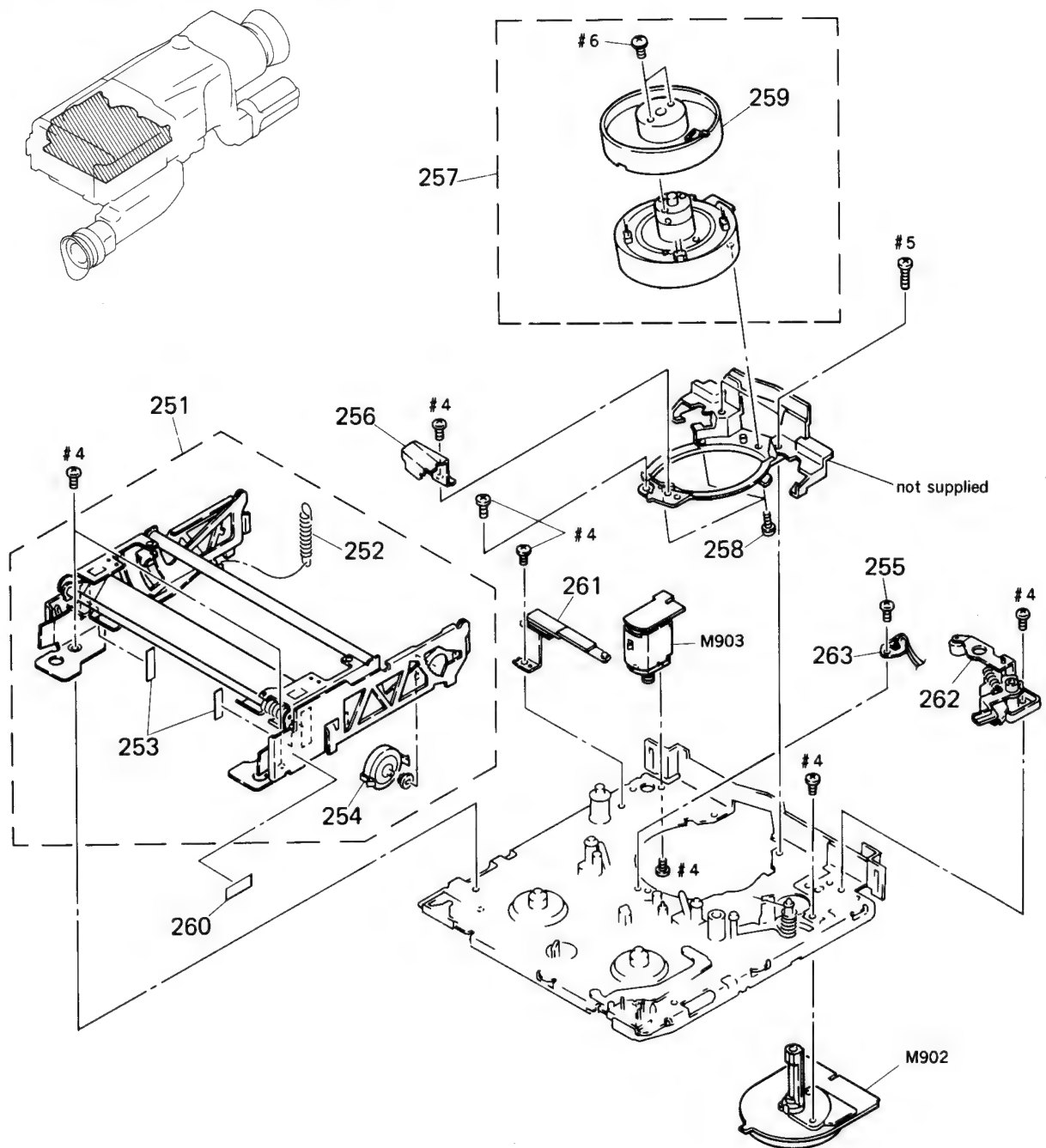
Ref. No.	Part No.	Description	Remark
163	3-749-142-02	EYE CUP	
164	3-744-716-01	COVER, FL	
165	X-3744-701-1	CASE ASSY, LOWER, VF	
166	3-719-381-01	SCREW (M2X4)	
167	3-302-492-00	SPRING, COMPRESSION	
168	3-732-012-11	SCREW (M2X5)	
169	3-744-712-01	SHOE, VF	
170	3-713-790-31	SCREW (M2X8), TAPPING, P3	
	L901-1A	1-451-310-21 DEFLECTION YOKE (B/W)	
	V901-1A	1-546-085-11 CATHODE-RAY TUBE, B/W	
	V901-2A	1-452-482-11 CRT ASSY (M91JYZ60WB)	

5-5. MAIN BOARDS ASSEMBLIES



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
201	* A-7071-433-A	CC-60 BOARD, COMPLETE		215	* A-7062-794-A	SS-134 BOARD, COMPLETE	
202	3-713-790-11	SCREW (M2X5), TAPPING, P3		216	1-634-427-11	FP-256 FLEXIBLE BOARD	
203	X-3940-504-1	FP-427 ASSY		217	1-634-428-11	FP-257 BOARD	
205	3-732-791-31	SCREW (M2X3)		218	1-634-426-11	FP-255 FLEXIBLE BOARD	
206	* A-7062-793-A	FU-97 BOARD, COMPLETE		219	* A-7068-183-A	HR-10 BOARD, COMPLETE	
207	A-7091-210-A	PLATE ASSY, JACK		220	* X-3744-711-1	LID ASSY, REAR, RP	
208	* X-3744-707-1	LID ASSY, REAR, FU SHIELD		221	X-3744-720-1	HOLDER ASSY, FP	
209	* X-3744-706-1	CASE ASSY, SHIELD, FU		222	1-569-346-11	CONNECTOR, FPC (TRANSLATION) 10 P	
210	3-732-791-01	SCREW (M2X3)		223	* A-7062-795-A	VA-64 BOARD, COMPLETE	
211	3-744-779-01	FRAME, MD		224	1-634-431-11	FP-260 FLEXIBLE BOARD	
212	3-940-504-01	COVER, CAP		225	3-744-757-01	SUPPORT (10), C	
213	* A-7062-796-A	AU-99 BOARD, COMPLETE		226	1-566-850-31	CONNECTOR, (S) TERMINAL 4P	
214	1-569-347-11	CONNECTOR, FPC (TRANSLATION) 13P		J101	1-537-241-11	TERMINAL BOARD (BATTERY)	

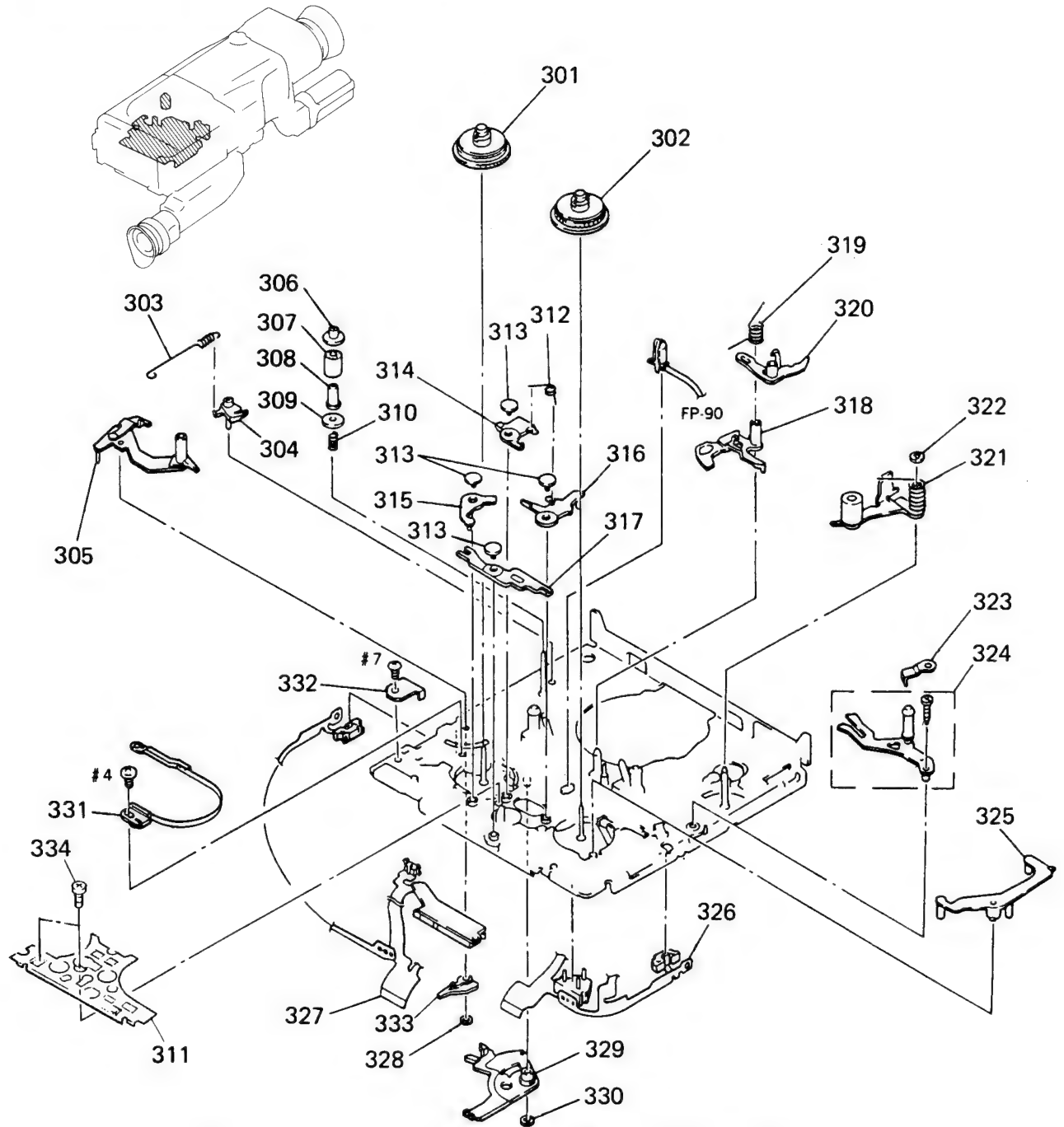
5-6. MECHANICAL CHASSIS ASSEMBLY (1)



Ref. No.	Part No.	Description	Remark
251	X-3728-874-1	CASSETTE COMPARTMENT ASSY (N)	
252	3-728-825-03	SPRING, TENSION	
253	* 3-728-829-01	TAPE	
254	3-728-867-02	DAMPER, OIL	
255	3-732-087-31	SCREW (M1.4X1.8), SPECIAL HEAD	
256	3-728-868-01	GUARD, GUIDE	
257	A-7048-403-A	DRUM ASSY (DGR-62A-R)	
258	3-686-493-01	SCREW +P (M2X5)	

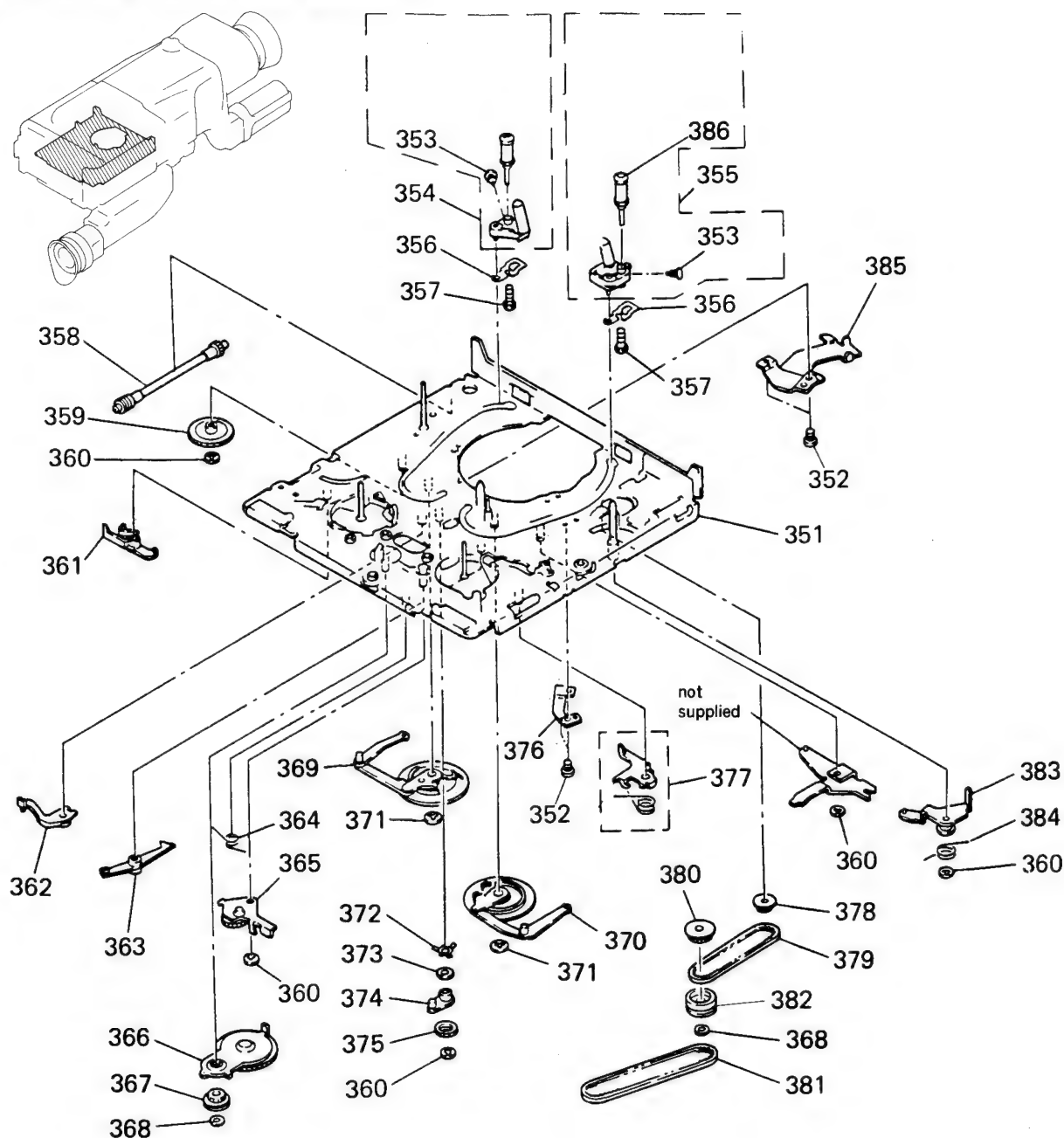
Ref. No.	Part No.	Description	Remark
259	A-7049-341-A	DRUM ASSY, UPPER, ROTARY (DGR-62-R)	
260	* 3-730-176-11	SHEET, MD	
261	X-3728-864-1	GROUND ASSY, SHAFT	
262	A-7040-207-A	ROLLER BLOCK ASSY, HC	
263	1-808-505-12	SENSOR (DEW)	
M902	8-835-331-01	MOTOR, DC U-22A	
M903	A-7040-208-A	MOTOR ASSY, THREADING	

5-7. MECHANICAL CHASSIS ASSEMBLY (2)



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
301	X-3728-851-1	TABLE ASSY, REEL, S		318	3-728-875-01	STOPPER, RK	
302	X-3728-855-1	TABLE ASSY, REEL, T		319	3-726-864-01	SPRING (RK), TORSION	
303	3-736-414-01	SPRING, TENSION		320	3-728-852-02	ARM, RK STOPPER	
304	3-728-855-03	ARM, ADJUSTMENT		321	A-7040-219-A	ARM BLOCK ASSY, PINCH	
305	X-3728-867-1	ARM ASSY (S), TENSION REGULATOR		322	3-669-465-00	WASHER (1.5), STOPPER	
306	3-726-884-01	FLANGE, UPPER, TG2		323	3-728-808-01	SPRING, LEAF	
307	3-726-883-01	ROLLER, TG2		324	X-3728-869-1	ARM ASSY, TG7	
308	3-726-885-01	SLEEVE, TG2		325	3-728-848-01	ARM, LB RELEASE	
309	3-726-882-02	FLANGE, LOWER, TG2		326	1-628-061-12	FP-90 FLEXIBLE BOARD	
310	3-726-886-01	SPRING, COMPRESSION		327	1-628-060-12	FP-89 FLEXIBLE BOARD	
311	3-741-195-01	PLATE, BLIND, RK		328	3-321-393-11	WASHER, STOPPER	
312	3-726-866-01	SPRING (ST), TORSION		329	X-3728-863-1	LEVER ASSY, SW	
313	3-726-858-01	PIN, SHAFT RETAINER		330	3-726-829-01	WASHER, STOPPER	
314	3-728-849-01	BRAKE, S		331	X-3728-859-1	BAND ASSY, TENSION REGULATOR	
315	3-726-852-01	BRAKE, LB		332	3-730-125-01	RETAINER, SW	
316	3-728-850-01	BRAKE, T		333	X-3728-857-1	STOPPER ASSY, TENSION REGULATOR	
317	3-726-853-01	LEVER, LB		334	3-732-087-31	SCREW (M1.4X1.8), SPECIAL HEAD	

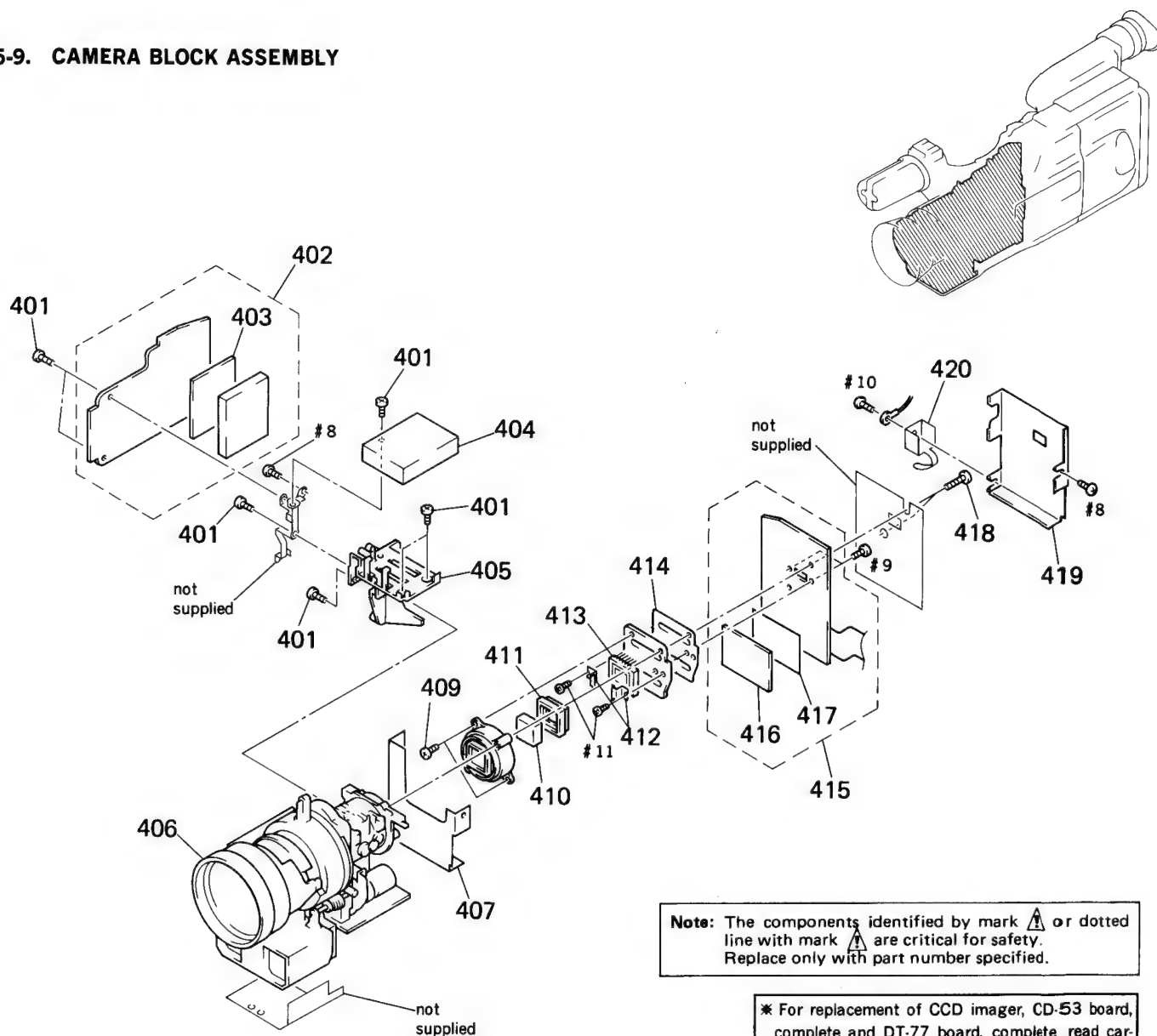
5-8. MECHANICAL CHASSIS ASSEMBLY (3)





Ref. No.	Part No.	Description	Remark
351	X-3728-862-1	CHASSIS ASSY, MECHANICAL	
352	3-732-087-31	SCREW (M1.4X1.8), SPECIAL HEAD	
353	3-726-822-01	SCREW (M1.4X2) (STEP), HEAD	
354	A-7040-204-A	COASTER (LEFT) BLOCK ASSY	
355	A-7040-215-A	COASTER (RIGHT) BLOCK ASSY (N1S)	
356	3-736-485-01	SPRING, LEAF, COSTER	
357	3-726-830-01	SCREW (M1.4X4) (THREE LOCK)	
358	X-3728-868-1	WORM ASSY	
359	3-744-109-01	GEAR, WHEEL	
360	3-726-829-01	WASHER, STOPPER	
361	3-728-842-01	LEVER, EJECT	
362	3-728-851-01	BRAKE, UL	
363	3-726-854-01	ARM, BRAKE RELEASE	
364	3-726-865-01	SPRING (LB), TORSION	
365	A-7040-225-A	GEAR BLOCK ASSY (N), LB	
366	X-3728-866-1	GEAR ASSY, RK	
367	X-3728-858-1	GEAR ASSY, RC	
368	3-321-393-11	WASHER, STOPPER	


Ref. No.	Part No.	Description	Remark
369	X-3728-842-1	GEAR (LEFT) ASSY, DRIVE	
370	X-3728-843-1	GEAR (RIGHT) ASSY, DRIVE	
371	3-669-465-00	WASHER (1.5), STOPPER	
372	3-726-867-01	SPRING, LEAF	
373	3-701-436-21	WASHER, POLYETHYLENE	
374	3-726-857-03	ARM, UL	
375	3-726-856-04	GEAR, UL	
376	* 3-726-805-01	REINFORCEMENT (TT)	
377	X-3726-808-2	BRAKE ASSY, TS	
378	X-3726-805-1	GEAR ASSY, JOINT	
379	3-728-866-11	BELT (S), TIMING	
380	X-3726-813-1	PULLEY (UPPER) ASSY, MIDWAY	
381	3-741-197-01	BELT (L), TIMING	
382	3-741-196-01	PULLEY (LOWER), BELT MIDWAY	
383	X-3726-824-1	ARM ASSY, PINCH SUB	
384	3-726-895-01	SPRING	
385	X-3726-841-1	REINFORCEMENT (SS) ASSY	
386	X-3728-808-4	ROLLER ASSY (U) (SUS), GUIDE	

5-9. CAMERA BLOCK ASSEMBLY



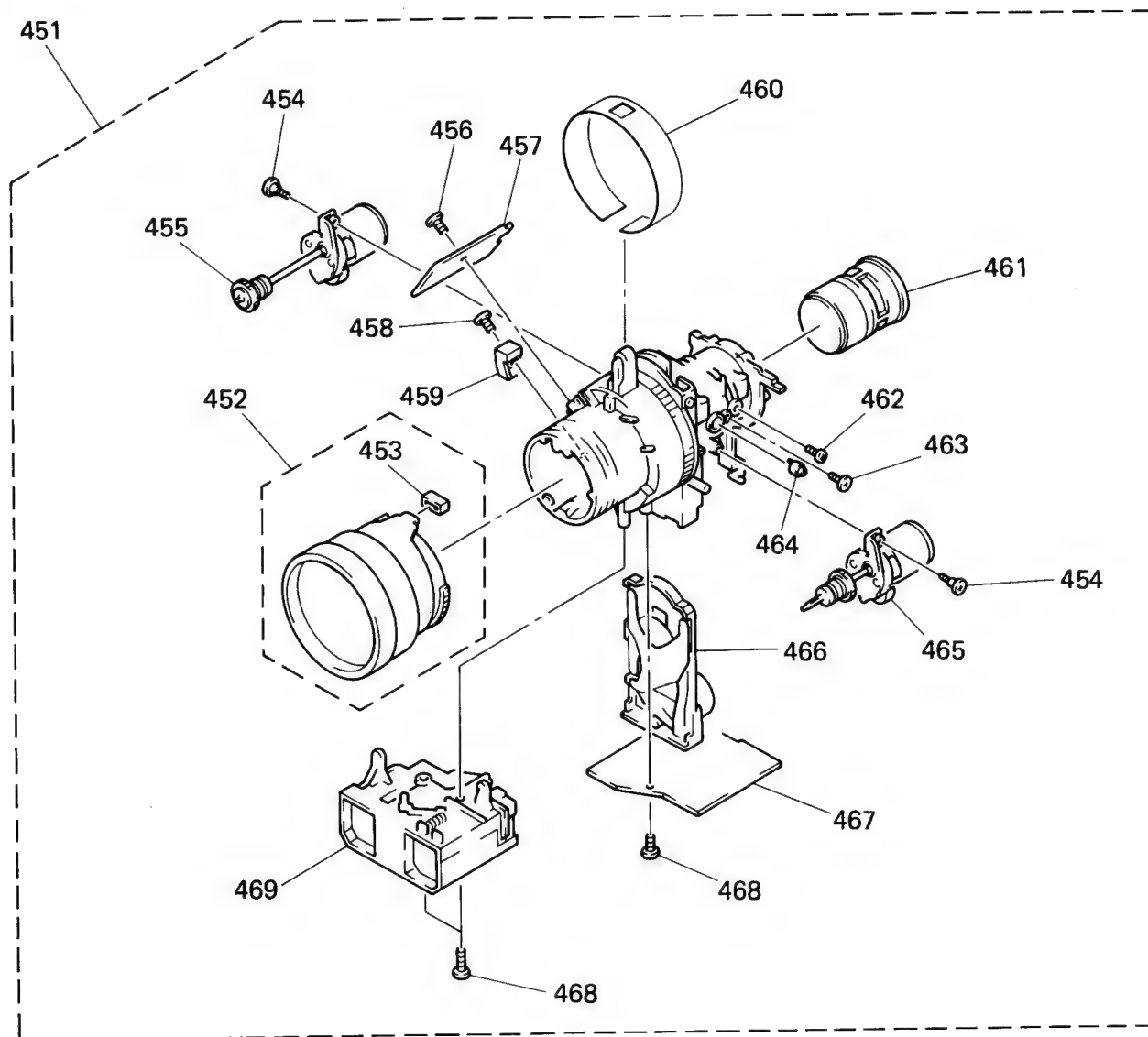
Note: The components identified by mark  or dotted line with mark  are critical for safety. Replace only with part number specified.

* For replacement of CCD imager, CD-53 board, complete and DT-77 board, complete read carefully the CAUTIONS FOR REPLACEMENT OF CCD IMAGER on page 119.

Ref. No.	Part No.	Description	Remark
401	3-727-903-11	SCREW (2X5), TAPPING, +B	
402	* A-7062-798-A	VC-86 BOARD, COMPLETE	
403	A-7068-186-A	MX-10 BOARD, COMPLETE (HIC)	
404	 1-466-230-21	CONVERTER UNIT, D/D	
405	3-942-211-01	HOLDER, LITHIUM	
406	1-547-482-11	LENS, ZOOM (VCL-8508XJ)	
407	* X-3744-702-1	CASE (MAIN) ASSY, SHIELD, C	
409	3-738-519-11	SCREW (M2X3), +B	
410	1-547-381-12	FILTER BLOCK, OPTICAL	
411	* 3-725-177-01	RUBBER, SEAL	

Ref. No.	Part No.	Description	Remark
412	* 3-725-175-01	STOPPER, CCD	
413	* 8-752-604-72	IC ICX039AN-2 (CCD IMAGER)	
414	* 3-725-180-01	SHEET, INSULATING, CCD HOLDER	
415	* A-7062-797-A	CD-53 BOARD, COMPLETE	
416	A-7068-173-A	DT-77 BOARD, COMPLETE (HIC)	
417	* X-3739-811-1	PLATE ASSY, SHIELD, CD	
418	3-335-640-51	SCREW (M2X16)	
419	* X-3744-763-1	LID ASSY, C SHIELD CASE	
420	* 3-943-050-01	SPRING, GROUND, CAMERA	

5-10. ZOOM LENS ASSEMBLY



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
451	1-547-482-11	LENS, ZOOM (VCL-8508XJ)		461	3-708-241-01	MIRROR TUBE UNIT, RELAY	
452	3-708-242-01	LENS ASSY, FOCUS		462	3-707-455-01	SCREW, RELAY SEY	
453	3-708-243-01	RUBBER, F STOPPER		463	3-707-454-01	SCREW	
454	3-707-447-01	SCREW, MOTOR CLAMP		464	3-707-453-01	ROLLER, ECCENTRIC	
455	3-708-237-01	MOTOR ASSY, AF		465	3-708-240-01	MOTOR ASSY, PZ	
456	3-707-761-01	SCREW, SW BOARD CLAMP		466	3-708-235-01	METER ASSY, IG	
457	3-708-244-01	SW BOARD		467	3-708-239-01	AF BOARD	
458	3-707-445-01	SCREW, N STOPPER CLAMP		468	3-707-459-01	SCREW	
459	3-707-446-01	STOPPER, N		469	3-708-238-01	BLOCK ASSY, AF	
460	3-708-236-01	SHEET, ZOOM					

SECTION 6 ELECTRICAL PARTS LIST

AU-99

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- -XX, -X mean standardized parts, so they may have some differences from the original one.
- CAPACITORS
uF: μ F

- RESISTORS
All resistors are in ohms
METAL: Metal-film resistor
METAL OXIDE: Metal Oxide-film resistor
F: nonflammable
- COILS
uH: μ H
- SEMICONDUCTORS
In each case, u: μ , for example:
uA...: μ A..., uPA...: μ PA...,
uPB...: μ PB..., uPC...: μ PC...,
uPD...: μ PD...

The components identified by mark **A** or dotted line with mark **A** are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
<p>* A-7062-796-A AU-99 BOARD, COMPLETE</p> <p>*****</p> <p>(Ref. No 6,000 Series)</p> <p>< CAPACITOR ></p>							
C401	1-164-633-11	CERAMIC CHIP	0.1uF 10% 25V	C431	1-126-206-11	ELECT CHIP	100uF 20% 6.3V
C402	1-162-974-11	CERAMIC CHIP	0.01uF 50V	C432	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V
C403	1-128-013-11	ELECT CHIP	1uF 20% 50V	C433	1-162-974-11	CERAMIC CHIP	0.01uF 50V
C404	1-126-206-11	ELECT CHIP	100uF 20% 6.3V	C434	1-124-584-00	ELECT	100uF 20% 10V
C405	1-162-974-11	CERAMIC CHIP	0.01uF 50V	C435	1-163-809-11	CERAMIC CHIP	0.047uF 10% 25V
C406	1-124-584-00	ELECT	100uF 20% 10V	C436	1-163-989-11	CERAMIC CHIP	0.033uF 10% 25V
C407	1-124-584-00	ELECT	100uF 20% 10V	C437	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V
C408	1-162-974-11	CERAMIC CHIP	0.01uF 50V	C438	1-126-206-11	ELECT CHIP	100uF 20% 6.3V
C409	1-128-013-11	ELECT CHIP	1uF 20% 50V	C439	1-162-965-11	CERAMIC CHIP	0.0015uF 10% 50V
C410	1-124-778-00	ELECT CHIP	22uF 20% 6.3V	C440	1-162-974-11	CERAMIC CHIP	0.01uF 50V
C411	1-128-013-11	ELECT CHIP	1uF 20% 50V	C441	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V
C412	1-128-013-11	ELECT CHIP	1uF 20% 50V	C443	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V
C413	1-124-778-00	ELECT CHIP	22uF 20% 6.3V	C446	1-162-969-11	CERAMIC CHIP	0.0068uF 10% 25V
C414	1-162-952-11	CERAMIC CHIP	82PF 5% 50V	C448	1-128-013-11	ELECT CHIP	1uF 20% 50V
C415	1-164-489-11	CERAMIC CHIP	0.22uF 10% 16V	C449	1-162-966-11	CERAMIC CHIP	0.0022uF 10% 50V
C416	1-124-778-00	ELECT CHIP	22uF 20% 6.3V	C450	1-135-157-21	TANTALUM CHIP	10uF 20% 6.3V
C417	1-128-013-11	ELECT CHIP	1uF 20% 50V	C451	1-135-177-21	TANTALUM CHIP	1uF 20% 20V
C418	1-128-013-11	ELECT CHIP	1uF 20% 50V	C452	1-135-151-21	TANTALUM CHIP	4.7uF 20% 4V
C419	1-124-778-00	ELECT CHIP	22uF 20% 6.3V	C453	1-162-957-11	CERAMIC CHIP	220PF 5% 50V
C421	1-164-633-11	CERAMIC CHIP	0.1uF 10% 25V	C454	1-164-299-11	CERAMIC CHIP	0.22uF 10% 25V
C422	1-162-974-11	CERAMIC CHIP	0.01uF 50V	C455	1-126-603-11	ELECT CHIP	4.7uF 20% 35V
C423	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V	C456	1-126-209-11	ELECT CHIP	100uF 20% 4V
C424	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V	C457	1-164-299-11	CERAMIC CHIP	0.22uF 10% 25V
C425	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V	C459	1-162-974-11	CERAMIC CHIP	0.01uF 50V
C426	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V	C460	1-126-206-11	ELECT CHIP	100uF 20% 6.3V
C427	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V	C461	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V
C428	1-164-299-11	CERAMIC CHIP	0.22uF 10% 25V	C462	1-162-974-11	CERAMIC CHIP	0.01uF 50V
C429	1-126-603-11	ELECT CHIP	4.7uF 20% 35V	C463	1-126-206-11	ELECT CHIP	100uF 20% 6.3V
C430	1-162-974-11	CERAMIC CHIP	0.01uF 50V	C464	1-163-809-11	CERAMIC CHIP	0.047uF 10% 25V
				C467	1-163-989-11	CERAMIC CHIP	0.033uF 10% 25V
				C468	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V
				C470	1-162-966-11	CERAMIC CHIP	0.0022uF 10% 50V
				C473	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V
				C475	1-162-969-11	CERAMIC CHIP	0.0068uF 10% 25V

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Ref. No.	Part No.	Description	Remark		
C477	1-128-013-11	ELECT CHIP	1uF	20%	50V
C478	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C479	1-135-157-21	TANTALUM CHIP	10uF	20%	6.3V
C480	1-135-177-21	TANTALUM CHIP	1uF	20%	20V
C481	1-135-151-21	TANTALUM CHIP	4.7uF	20%	4V
C482	1-162-957-11	CERAMIC CHIP	220PF	5%	50V
C483	1-164-299-11	CERAMIC CHIP	0.22uF	10%	25V
C485	1-162-969-11	CERAMIC CHIP	0.0068uF	10%	25V
C486	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C487	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C488	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C489	1-162-949-11	CERAMIC CHIP	47PF	5%	50V
C490	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C491	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C492	1-162-949-11	CERAMIC CHIP	47PF	5%	50V
C493	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C494	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C495	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V
C496	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V
C497	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C498	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C499	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V
C563	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C564	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C565	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C567	1-135-211-11	TANTAL. CHIP	6.8uF	20%	6.3V
< CONNECTOR >					
CN401	1-569-775-21	PIN, CONNECTOR 5P			
CN402	LS1-580-056-21	PIN, CONNECTOR 3P			
< DIODE >					
D401	8-719-941-86	DIODE DAN202U			
D402	8-719-941-86	DIODE DAN202U			
D403	8-719-404-46	DIODE MA110			
D404	8-719-941-86	DIODE DAN202U			
D406	8-719-977-22	DIODE DTZ9.1			
D408	8-719-977-22	DIODE DTZ9.1			
< FILTER >					
FL401	1-236-837-21	FILTER, BAND PASS (1.5M)			
FL402	1-236-838-21	FILTER, BAND PASS (1.7M)			
< IC >					
IC401	8-759-823-21	IC CXA-1536Q			
IC402	8-759-009-22	IC MC14094BF			
IC403	8-759-823-19	IC CXA-1488R			
IC404	8-759-823-19	IC CXA-1488R			

Ref. No.	Part No.	Description	Remark		
IC405	8-759-300-71	IC HD14053BF			
IC406	8-759-008-67	IC MC14066BF			
< COIL >					
L401	1-410-381-11	INDUCTOR CHIP	10uH		
< TRANSISTOR >					
Q401	8-729-905-12	TRANSISTOR	DTA144EU		
Q402	8-729-905-18	TRANSISTOR	DTC144EU		
Q403	8-729-905-12	TRANSISTOR	DTA144EU		
Q404	8-729-905-23	TRANSISTOR	2SA1576-R		
Q405	8-729-905-23	TRANSISTOR	2SA1576-R		
Q408	8-729-907-26	TRANSISTOR	IMX1		
Q409	8-729-905-35	TRANSISTOR	2SC4081-R		
Q410	8-729-907-26	TRANSISTOR	IMX1		
Q411	8-729-907-26	TRANSISTOR	IMX1		
Q412	8-729-905-18	TRANSISTOR	DTC144EU		
Q413	8-729-905-23	TRANSISTOR	2SA1576-R		
Q414	8-729-905-23	TRANSISTOR	2SA1576-R		
Q415	8-729-905-35	TRANSISTOR	2SC4081-R		
Q416	8-729-905-23	TRANSISTOR	2SA1576-R		
Q417	8-729-905-35	TRANSISTOR	2SC4081-R		
Q419	8-729-905-18	TRANSISTOR	DTC144EU		
Q425	8-729-905-18	TRANSISTOR	DTC144EU		
Q426	8-729-905-18	TRANSISTOR	DTC144EU		
Q427	8-729-905-35	TRANSISTOR	2SC4081-R		
Q428	8-729-905-35	TRANSISTOR	2SC4081-R		
< RESISTOR >					
R401	1-216-864-11	METAL CHIP	0		
R402	1-216-864-11	METAL CHIP	0		
R403	1-216-853-11	METAL CHIP	470K	5%	1/16W
R404	1-216-855-11	METAL CHIP	680K	5%	1/16W
R407	1-216-853-11	METAL CHIP	470K	5%	1/16W
R408	1-216-830-11	METAL CHIP	5.6K	5%	1/16W
R410	1-216-830-11	METAL CHIP	5.6K	5%	1/16W
R412	1-216-864-11	METAL CHIP	0		
R413	1-216-835-11	METAL CHIP	15K	5%	1/16W
R416	1-216-837-11	METAL CHIP	22K	5%	1/16W
R419	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R420	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R421	1-216-824-11	METAL CHIP	1.8K	5%	1/16W
R422	1-216-826-11	METAL CHIP	2.7K	5%	1/16W
R423	1-216-837-11	METAL CHIP	22K	5%	1/16W
R424	1-216-834-11	METAL CHIP	12K	5%	1/16W
R425	1-216-820-11	METAL CHIP	820	5%	1/16W
R426	1-216-821-11	METAL CHIP	1K	5%	1/16W
R427	1-216-821-11	METAL CHIP	1K	5%	1/16W
R428	1-216-815-11	METAL CHIP	330	5%	1/16W

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
R429	1-216-819-11	METAL CHIP	680 5% 1/16W	R560	1-216-841-11	METAL CHIP	47K 5% 1/16W
R430	1-216-821-11	METAL CHIP	1K 5% 1/16W	R561	1-216-833-11	METAL CHIP	10K 5% 1/16W
R431	1-216-841-11	METAL CHIP	47K 5% 1/16W	R562	1-216-825-11	METAL CHIP	2.2K 5% 1/16W
R432	1-216-841-11	METAL CHIP	47K 5% 1/16W	R563	1-216-825-11	METAL CHIP	2.2K 5% 1/16W
R433	1-216-829-11	METAL CHIP	4.7K 5% 1/16W	R564	1-216-833-11	METAL CHIP	10K 5% 1/16W
R434	1-216-829-11	METAL CHIP	4.7K 5% 1/16W	R565	1-216-819-11	METAL CHIP	680 5% 1/16W
R435	1-216-841-11	METAL CHIP	47K 5% 1/16W	R567	1-216-813-11	METAL CHIP	220 5% 1/16W
R436	1-216-841-11	METAL CHIP	47K 5% 1/16W	R568	1-216-819-11	METAL CHIP	680 5% 1/16W
R437	1-216-835-11	METAL CHIP	15K 5% 1/16W	R570	1-216-813-11	METAL CHIP	220 5% 1/16W
R439	1-216-840-11	METAL CHIP	39K 5% 1/16W	R571	1-216-864-11	METAL CHIP	0
R440	1-216-864-11	METAL CHIP	0	R572	1-216-864-11	METAL CHIP	0
R443	1-216-864-11	METAL CHIP	0	R573	1-216-833-11	METAL CHIP	10K 5% 1/16W
R444	1-216-830-11	METAL CHIP	5.6K 5% 1/16W	R574	1-216-833-11	METAL CHIP	10K 5% 1/16W
R445	1-216-837-11	METAL CHIP	22K 5% 1/16W	R575	1-216-845-11	METAL CHIP	100K 5% 1/16W
R446	1-216-859-11	METAL GLAZE	1.5M 5% 1/16W	R576	1-216-829-11	METAL CHIP	4.7K 5% 1/16W
R447	1-216-825-11	METAL CHIP	2.2K 5% 1/16W	R577	1-216-864-11	METAL CHIP	0
R448	1-216-839-11	METAL CHIP	33K 5% 1/16W	R578	1-216-864-11	METAL CHIP	0
R449	1-216-825-11	METAL CHIP	2.2K 5% 1/16W	R579	1-216-821-11	METAL CHIP	1K 5% 1/16W
R450	1-216-827-11	METAL CHIP	3.3K 5% 1/16W	R580	1-216-821-11	METAL CHIP	1K 5% 1/16W
R451	1-216-837-11	METAL CHIP	22K 5% 1/16W	R582	1-216-825-11	METAL CHIP	2.2K 5% 1/16W
R452	1-216-835-11	METAL CHIP	15K 5% 1/16W	R583	1-216-825-11	METAL CHIP	2.2K 5% 1/16W
R454	1-216-830-11	METAL CHIP	5.6K 5% 1/16W	R584	1-216-829-11	METAL CHIP	4.7K 5% 1/16W
R455	1-216-835-11	METAL CHIP	15K 5% 1/16W	R585	1-216-829-11	METAL CHIP	4.7K 5% 1/16W
R456	1-216-832-11	METAL CHIP	8.2K 5% 1/16W	R586	1-216-097-00	METAL CHIP	100K 5% 1/10W
R458	1-216-832-11	METAL CHIP	8.2K 5% 1/16W	R587	1-216-864-11	METAL CHIP	0
R462	1-216-839-11	METAL CHIP	33K 5% 1/16W	R589	1-216-864-11	METAL CHIP	0
R463	1-216-833-11	METAL CHIP	10K 5% 1/16W	R590	1-216-864-11	METAL CHIP	0
R464	1-216-835-11	METAL CHIP	15K 5% 1/16W	R591	1-216-864-11	METAL CHIP	0
R466	1-216-840-11	METAL CHIP	39K 5% 1/16W	R592	1-216-801-11	METAL CHIP	22 5% 1/16W
R467	1-216-864-11	METAL CHIP	0	R762	1-216-864-11	METAL CHIP	0
R468	1-216-838-11	METAL CHIP	27K 5% 1/16W	R764	1-216-864-11	METAL CHIP	0
R471	1-216-830-11	METAL CHIP	5.6K 5% 1/16W	R768	1-216-825-11	METAL CHIP	2.2K 5% 1/16W
R472	1-216-864-11	METAL CHIP	0	< VARIABLE RESISTOR >			
R473	1-216-837-11	METAL CHIP	22K 5% 1/16W	RV401	1-238-090-11	RES, ADJ CERMET	10K
R474	1-216-859-11	METAL GLAZE	1.5M 5% 1/16W	RV402	1-238-090-11	RES, ADJ CERMET	10K
R476	1-216-830-11	METAL CHIP	5.6K 5% 1/16W	RV403	1-238-089-11	RES, ADJ CERMET	4.7K
R477	1-216-832-11	METAL CHIP	8.2K 5% 1/16W	RV404	1-238-090-11	RES, ADJ CERMET	10K
R478	1-216-825-11	METAL CHIP	2.2K 5% 1/16W	RV405	1-238-090-11	RES, ADJ CERMET	10K
R479	1-216-815-11	METAL CHIP	330 5% 1/16W	RV407	1-238-090-11	RES, ADJ CERMET	10K
R480	1-216-832-11	METAL CHIP	8.2K 5% 1/16W	RV408	1-238-090-11	RES, ADJ CERMET	10K
R484	1-216-839-11	METAL CHIP	33K 5% 1/16W	< TERMINAL >			
R485	1-216-833-11	METAL CHIP	10K 5% 1/16W	TP401	* 1-535-622-11	PIN, TERMINAL	
R488	1-216-845-11	METAL CHIP	100K 5% 1/16W	TP402	* 1-535-622-11	PIN, TERMINAL	
R491	1-216-810-11	METAL CHIP	120 5% 1/16W	< FLEXIBLE BOARD >			
R494	1-216-810-11	METAL CHIP	120 5% 1/16W	W401	1-634-432-11	FP-261 FLEXIBLE BOARD	
R496	1-216-814-11	METAL CHIP	270 5% 1/16W				
R497	1-216-829-11	METAL CHIP	4.7K 5% 1/16W				
R498	1-216-833-11	METAL CHIP	10K 5% 1/16W				
R499	1-216-841-11	METAL CHIP	47K 5% 1/16W				

CC-60**CD-53**

Ref. No.	Part No.	Description	Remark

	* A-7071-433-A	CC-60 BOARD, COMPLETE ***** (Ref. No 2, 000 Series)	
< CAPACITOR >			
C901	1-135-157-21	TANTALUM CHIP 10uF 20% 6.3V	
C902	1-135-157-21	TANTALUM CHIP 10uF 20% 6.3V	
< CONNECTOR >			
CN901	1-566-529-11	CONNECTOR, FPC (ZIF) 13P	
CN902	1-566-527-11	CONNECTOR, FPC (ZIF) 11P	
< TRANSISTOR >			
Q901	8-729-902-93	TRANSISTOR FMG4	
< RESISTOR >			
R901	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R902	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R905	1-216-095-00	METAL CHIP 82K 5% 1/10W	
R906	1-216-095-00	METAL CHIP 82K 5% 1/10W	
R907	1-216-295-00	METAL CHIP 0 5% 1/10W	
< FLEXIBLE BOARD >			
W901	1-639-031-11	FP-377 FLEXIBLE BOARD	

	* A-7062-797-A	CD-53 BOARD, COMPLETE ***** (Ref. No 1, 000 Series)	
	3-744-718-01	HOLDER (10), C	
< CAPACITOR >			
C101	1-126-200-11	ELECT CHIP 10uF 20% 35V	
C102	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C104	1-128-013-11	ELECT CHIP 1uF 20% 50V	
C105	1-126-607-11	ELECT CHIP 47uF 20% 4V	
C107	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C110	1-126-206-11	ELECT CHIP 100uF 20% 6.3V	
C111	1-162-915-11	CERAMIC CHIP 10PF 0.5PF 50V	
C112	1-164-005-11	CERAMIC CHIP 0.47uF 25V	
C113	1-128-013-11	ELECT CHIP 1uF 20% 50V	
C114	1-128-008-11	ELECT CHIP 3.3uF 20% 35V	
C115	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C121	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C122	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C123	1-135-091-00	TANTALUM CHIP 1uF 20% 16V	
C124	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	

Ref. No.	Part No.	Description	Remark

C125	1-126-205-11	ELECT CHIP 47uF 20% 6.3V	
C126	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C127	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C128	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C129	1-163-809-11	CERAMIC CHIP 0.047uF 10% 25V	
C130	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C131	1-162-638-11	CERAMIC CHIP 1uF 16V	
C135	1-162-638-11	CERAMIC CHIP 1uF 16V	
C136	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C137	1-162-919-11	CERAMIC CHIP 22PF 5% 50V	
C138	1-162-962-11	CERAMIC CHIP 470PF 10% 50V	
C140	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C141	1-162-942-11	CERAMIC CHIP 12PF 5% 50V	
C142	1-135-145-11	TANTALUM CHIP 0.47uF 10% 25V	
C144	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C147	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C148	1-164-005-11	CERAMIC CHIP 0.47uF 25V	
C187	1-162-966-11	CERAMIC CHIP 0.0022uF 10% 50V	
C188	1-162-966-11	CERAMIC CHIP 0.0022uF 10% 50V	
C189	1-162-966-11	CERAMIC CHIP 0.0022uF 10% 50V	
C190	1-162-953-11	CERAMIC CHIP 100PF 5% 50V	
C191	1-135-181-21	TANTALUM CHIP 4.7uF 20% 6.3V	
C192	1-126-100-11	ELECT 10uF 20% 6.3V	
< CONNECTOR >			
CN101	* 1-565-876-11	PIN, CONNECTOR (PC BOARD) 4P	
< TRIMMER >			
CT121	1-141-424-11	CAP, ADJ	
CT122	1-141-356-11	CAP, ADJ	
< DIODE >			
D101	8-719-404-46	DIODE MA110	
D102	8-719-404-52	DIODE MA143	
D122	8-719-404-32	DIODE MA141WA	
D123	8-719-404-46	DIODE MA110	
D124	8-719-404-32	DIODE MA141WA	
D125	8-719-949-46	DIODE 1T32	
D128	8-719-404-46	DIODE MA110	
< HIC >			
HIC121	A-7068-173-B	DT-77F BOARD, COMPLETE (HIC)	
< IC >			
IC121	8-752-326-08	IC CXD1159Q	

Ref. No.	Part No.	Description	Remark
< COIL >			
L101	1-412-063-21	INDUCTOR CHIP 68uH	
L121	1-412-058-11	INDUCTOR, CHIP 10uH	
L122	1-412-058-11	INDUCTOR, CHIP 10uH	
L123	1-410-381-11	INDUCTOR CHIP 10uH	
L182	1-412-058-11	INDUCTOR, CHIP 10uH	
L183	1-412-052-21	INDUCTOR CHIP 1uH	
L184	1-412-058-11	INDUCTOR, CHIP 10uH	
< TRANSISTOR >			
Q101	8-765-420-02	TRANSISTOR 2SK300-3	
Q102	8-729-905-35	TRANSISTOR 2SC4081-R	
Q121	8-729-402-84	TRANSISTOR XN4601	
Q122	8-729-402-78	TRANSISTOR XN6401	
Q123	8-729-402-19	TRANSISTOR XN6501	
Q125	8-729-905-35	TRANSISTOR 2SC4081-R	
Q126	8-729-402-84	TRANSISTOR XN4601	
Q129	8-729-905-23	TRANSISTOR 2SA1576-R	
Q130	8-729-905-35	TRANSISTOR 2SC4081-R	
Q131	8-729-402-84	TRANSISTOR XN4601	
Q132	8-729-402-84	TRANSISTOR XN4601	
Q133	8-729-402-84	TRANSISTOR XN4601	
Q135	8-729-402-84	TRANSISTOR XN4601	
Q136	8-729-402-45	TRANSISTOR UN5212	
< RESISTOR >			
R101	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R102	1-216-840-11	METAL CHIP 39K 5% 1/16W	
R103	1-216-820-11	METAL CHIP 820 5% 1/16W	
R104	1-216-809-11	METAL CHIP 100 5% 1/16W	
R105	1-216-827-11	METAL CHIP 3.3K 5% 1/16W	
R108	1-216-864-11	METAL CHIP 0	
R110	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R111	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R112	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R113	1-216-864-11	METAL CHIP 0	
R114	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R115	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R116	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R117	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R118	1-216-813-11	METAL CHIP 220 5% 1/16W	
R119	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R121	1-216-835-11	METAL CHIP 15K 5% 1/16W	
R122	1-216-857-11	METAL CHIP 1M 5% 1/16W	
R124	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R125	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R126	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R127	1-216-820-11	METAL CHIP 820 5% 1/16W	

Ref. No.	Part No.	Description	Remark
R128	1-216-843-11	METAL CHIP 68K 5% 1/16W	
R129	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R130	1-216-835-11	METAL CHIP 15K 5% 1/16W	
R131	1-216-844-11	METAL CHIP 82K 5% 1/16W	
R132	1-216-844-11	METAL CHIP 82K 5% 1/16W	
R133	1-216-850-11	METAL CHIP 270K 5% 1/16W	
R136	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R138	1-216-836-11	METAL CHIP 18K 5% 1/16W	
R139	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R140	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R141	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R142	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R143	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R148	1-216-849-11	METAL CHIP 220K 5% 1/16W	
R149	1-216-864-11	METAL CHIP 0	
R154	1-216-864-11	METAL CHIP 0	
R155	1-216-864-11	METAL CHIP 0	
R156	1-216-809-11	METAL CHIP 100 5% 1/16W	
R157	1-216-843-11	METAL CHIP 68K 5% 1/16W	
R158	1-216-862-11	METAL GLAZE 2.7M 5% 1/16W	
R159	1-216-809-11	METAL CHIP 100 5% 1/16W	
R160	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R161	1-216-809-11	METAL CHIP 100 5% 1/16W	
R162	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R163	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R164	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R165	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R166	1-216-836-11	METAL CHIP 18K 5% 1/16W	
R167	1-216-822-11	METAL CHIP 1.2K 5% 1/16W	
R168	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R169	1-216-864-11	METAL CHIP 0	
R171	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R173	1-216-813-11	METAL CHIP 220 5% 1/16W	
R181	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R182	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R183	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R184	1-216-835-11	METAL CHIP 15K 5% 1/16W	
R185	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R186	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R187	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R188	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R189	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R190	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R191	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R192	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R193	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R194	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R195	1-216-821-11	METAL CHIP 1K 5% 1/16W	

CD-53

FA-2

FD-44

Ref. No.	Part No.	Description	Remark
R196	1-216-813-11	METAL CHIP 220	5% 1/16W
R197	1-216-821-11	METAL CHIP 1K	5% 1/16W
R198	1-216-821-11	METAL CHIP 1K	5% 1/16W
R199	1-216-821-11	METAL CHIP 1K	5% 1/16W
R200	1-216-844-11	METAL CHIP 82K	5% 1/16W
R201	1-216-671-11	METAL CHIP 6.8K	0.5% 1/10W
R202	1-216-643-11	METAL CHIP 470	0.5% 1/10W
R203	1-216-681-11	METAL CHIP 18K	0.5% 1/10W
R204	1-216-671-11	METAL CHIP 6.8K	0.5% 1/10W
R205	1-216-659-11	METAL CHIP 2.2K	0.5% 1/10W
R206	1-216-681-11	METAL CHIP 18K	0.5% 1/10W
R207	1-216-841-11	METAL CHIP 47K	5% 1/16W
R208	1-216-825-11	METAL CHIP 2.2K	5% 1/16W
R209	1-216-825-11	METAL CHIP 2.2K	5% 1/16W
R210	1-216-833-11	METAL CHIP 10K	5% 1/16W
R215	1-216-842-11	METAL CHIP 56K	5% 1/16W
R216	1-216-833-11	METAL CHIP 10K	5% 1/16W
R217	1-216-833-11	METAL CHIP 10K	5% 1/16W
R218	1-216-833-11	METAL CHIP 10K	5% 1/16W
R219	1-216-833-11	METAL CHIP 10K	5% 1/16W
R220	1-216-835-11	METAL CHIP 15K	5% 1/16W
R221	1-216-840-11	METAL CHIP 39K	5% 1/16W
R222	1-216-833-11	METAL CHIP 10K	5% 1/16W
R226	1-216-864-11	METAL CHIP 0	
R229	1-216-864-11	METAL CHIP 0	
R230	1-216-833-11	METAL CHIP 10K	5% 1/16W
R231	1-216-813-11	METAL CHIP 220	5% 1/16W
R232	1-216-813-11	METAL CHIP 220	5% 1/16W
R233	1-216-841-11	METAL CHIP 47K	5% 1/16W
R234	1-216-841-11	METAL CHIP 47K	5% 1/16W

< FLEXIBLE BOARD >

W102 1-634-435-11 FP-265 FLEXIBLE BOARD

< CRYSTAL >

X121 1-579-076-11 VIBRATOR, CRYSTAL

X122 1-567-733-11 VIBRATOR, CRYSTAL

* A-7071-436-A FA-2 BOARD, COMPLETE

(Ref. No 5,000 Series)

< SWITCH >

S602 1-572-735-11 SWITCH, SLIDE (FOCUS)

Ref. No.	Part No.	Description	Remark
	* A-7062-799-A	FD-44 BOARD, COMPLETE	

		(Ref. No 4,000 Series)	
	* 3-942-215-01	HOLDER, LCD	
		< CAPACITOR >	
C201	1-162-917-11	CERAMIC CHIP 15PF	5% 50V
C202	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C203	1-135-149-21	TANTALUM CHIP 2.2uF	20% 10V
C204	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C205	1-162-971-11	CERAMIC CHIP 0.001uF	50V
C206	1-163-809-11	CERAMIC CHIP 0.047uF	10% 25V
C207	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C208	1-162-961-11	CERAMIC CHIP 330PF	10% 50V
C209	1-162-962-11	CERAMIC CHIP 470PF	10% 50V
C210	1-135-216-11	TANTALUM CHIP 10uF	20% 10V
C211	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C212	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C213	1-135-216-11	TANTALUM CHIP 10uF	20% 10V
C214	1-162-971-11	CERAMIC CHIP 0.001uF	50V
C215	1-135-149-21	TANTALUM CHIP 2.2uF	20% 10V
C216	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C217	1-135-149-21	TANTALUM CHIP 2.2uF	20% 10V
C218	1-164-227-11	CERAMIC CHIP 0.022uF	10% 25V
C219	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C220	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C221	1-162-920-11	CERAMIC CHIP 27PF	5% 50V
C222	1-162-920-11	CERAMIC CHIP 27PF	5% 50V
C223	1-135-215-21	TANTAL. CHIP 6.8uF	20% 16V
C224	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C230	1-163-809-11	CERAMIC CHIP 0.047uF	10% 25V
C231	1-164-232-11	CERAMIC CHIP 0.01uF	50V
C300	1-135-145-11	TANTALUM CHIP 0.47uF	10% 25V
C301	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C302	1-135-157-21	TANTALUM CHIP 10uF	20% 6.3V
C303	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C304	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C309	1-135-145-11	TANTALUM CHIP 0.47uF	10% 25V
C310	1-135-157-21	TANTALUM CHIP 10uF	20% 6.3V
C311	1-163-077-00	CERAMIC CHIP 0.1uF	10% 25V
C312	1-162-958-11	CERAMIC CHIP 270PF	5% 50V
C313	1-162-919-11	CERAMIC CHIP 22PF	5% 50V
C332	1-135-157-21	TANTALUM CHIP 10uF	20% 6.3V
C333	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C334	1-162-958-11	CERAMIC CHIP 270PF	5% 50V
C335	1-162-915-11	CERAMIC CHIP 10PF	0.5PF 50V
C336	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C337	1-135-149-21	TANTALUM CHIP 2.2uF	20% 10V

Ref. No.	Part No.	Description	Remark
C338	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V
C339	1-135-145-11	TANTALUM CHIP	0.47uF 10% 25V
C340	1-162-974-11	CERAMIC CHIP	0.01uF 50V
C341	1-164-227-11	CERAMIC CHIP	0.022uF 10% 25V
C342	1-162-974-11	CERAMIC CHIP	0.01uF 50V
C343	1-162-917-11	CERAMIC CHIP	15PF 5% 50V
C344	1-164-227-11	CERAMIC CHIP	0.022uF 10% 25V
C345	1-164-337-11	CERAMIC CHIP	2.2uF 16V
C346	1-162-974-11	CERAMIC CHIP	0.01uF 50V
C347	1-162-974-11	CERAMIC CHIP	0.01uF 50V
C348	1-162-915-11	CERAMIC CHIP	10PF 0.5PF 50V
C349	1-135-177-21	TANTALUM CHIP	1uF 20% 20V
C350	1-162-974-11	CERAMIC CHIP	0.01uF 50V
C351	1-163-038-00	CERAMIC CHIP	0.1uF 25V
C352	1-135-177-21	TANTALUM CHIP	1uF 20% 20V
C353	1-162-638-11	CERAMIC CHIP	1uF 16V
C354	1-163-038-00	CERAMIC CHIP	0.1uF 25V
C355	1-163-038-00	CERAMIC CHIP	0.1uF 25V
C356	1-163-038-00	CERAMIC CHIP	0.1uF 25V
C357	1-162-974-11	CERAMIC CHIP	0.01uF 50V
C361	1-162-921-11	CERAMIC CHIP	33PF 5% 50V
C370	1-164-232-11	CERAMIC CHIP	0.01uF 50V
C371	1-163-809-11	CERAMIC CHIP	0.047uF 10% 25V
C372	1-163-809-11	CERAMIC CHIP	0.047uF 10% 25V
C380	1-135-177-21	TANTALUM CHIP	1uF 20% 20V
C381	1-163-251-11	CERAMIC CHIP	100PF 5% 50V
C382	1-163-809-11	CERAMIC CHIP	0.047uF 10% 25V
C383	1-162-965-11	CERAMIC CHIP	0.0015uF 10% 50V
C384	1-135-177-21	TANTALUM CHIP	1uF 20% 20V
< CONNECTOR >			
CN201	1-569-035-11	CONNECTOR, FPC (ZIF) 30P	
CN202	* 1-566-759-11	PIN, CONNECTOR (PC BOARD) 4P	
CN204	* 1-566-761-11	PIN, CONNECTOR (PC BOARD) 6P	
CN205	1-569-532-11	HOUSING, CONNECTOR 30P	
< TRIMMER >			
CT201	1-141-331-11	CAP, CHIP TRIMMER	
CT301	1-141-331-11	CAP, CHIP TRIMMER	
CT302	1-141-331-11	CAP, CHIP TRIMMER	
< DIODE >			
D201	8-719-940-45	DIODE DWA010	
D202	8-719-404-46	DIODE MA110	
D203	△ 8-719-938-72	DIODE SB01-05CP	
D204	8-719-420-36	DIODE MA151A	
D205	8-719-941-86	DIODE DAN202U	
D213	8-719-404-46	DIODE MA110	
D301	8-719-404-46	DIODE MA110	

Ref. No.	Part No.	Description	Remark
< IC >			
IC201	8-759-154-86	IC uPD75316GF-121-389	
IC202	8-759-999-02	IC TL1596CDB	
IC203	8-759-145-63	IC uPD7564G-540	
IC205	8-759-937-54	IC S-81250HG-RD-S	
IC206	8-759-937-56	IC S-8054ALB-LM-S	
IC301	8-759-998-30	IC CF79028PG	
IC302	8-752-330-66	IC CXK58257M-10L	
IC303	8-752-039-49	IC CXA1393AN	
IC304	8-759-634-47	IC M51285BGP	
< COIL >			
L201	1-412-058-11	INDUCTOR CHIP 10uH	
L202	1-410-393-11	INDUCTOR CHIP 100uH	
L300	1-412-058-11	INDUCTOR CHIP 10uH	
L301	1-412-187-11	INDUCTOR 18uH	
L302	1-410-377-31	INDUCTOR CHIP 4.7uH	
L310	1-410-377-31	INDUCTOR CHIP 4.7uH	
L311	1-410-393-11	INDUCTOR CHIP 100uH	
< DISPLAY PANEL >			
ND201	1-809-336-11	DISPLAY PANEL, LIQUID CRYSTAL	
< TRANSISTOR >			
Q201	8-729-904-20	TRANSISTOR FMA2	
Q202	8-729-905-18	TRANSISTOR DTC144EU	
Q203	8-729-905-24	TRANSISTOR 2SA1576-S	
Q204	8-729-905-15	TRANSISTOR DTC144WU	
Q205	△ 8-729-109-44	TRANSISTOR 2SK94	
Q206	8-729-402-78	TRANSISTOR XN6401	
Q207	8-729-402-19	TRANSISTOR XN6501	
Q208	8-729-402-78	TRANSISTOR XN6401	
Q209	8-729-403-10	TRANSISTOR XN6215	
Q210	8-729-905-XX	TRANSISTOR DTC114TU	
Q211	8-729-100-66	TRANSISTOR 2SC1623	
Q212	8-729-905-XX	TRANSISTOR DTC114TU	
Q213	8-729-905-18	TRANSISTOR DTC144EU	
Q214	8-729-905-12	TRANSISTOR DTA144EU	
Q301	8-729-925-91	TRANSISTOR DTC115EU	
Q311	8-729-905-35	TRANSISTOR 2SC4081-R	
Q312	8-729-905-35	TRANSISTOR 2SC4081-R	
Q313	8-729-905-18	TRANSISTOR DTC144EU	
Q314	8-729-905-35	TRANSISTOR 2SC4081-R	
Q315	8-729-905-18	TRANSISTOR DTC144EU	
Q317	8-729-905-24	TRANSISTOR 2SA1576-S	
Q318	8-729-905-24	TRANSISTOR 2SA1576-S	
Q319	8-729-905-35	TRANSISTOR 2SC4081-R	

Note: The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

Ref. No.	Part No.	Description	Remark			Ref. No.	Part No.	Description	Remark		
< RESISTOR >						R281	1-216-852-11	METAL CHIP	390K	5%	1/16W
R201	1-216-821-11	METAL CHIP	1K	5%	1/16W	R282	1-216-857-11	METAL CHIP	1M	5%	1/16W
R202	1-216-821-11	METAL CHIP	1K	5%	1/16W	R283	1-216-857-11	METAL CHIP	1M	5%	1/16W
R203	1-216-821-11	METAL CHIP	1K	5%	1/16W	R284	1-216-855-11	METAL CHIP	680K	5%	1/16W
R204	1-216-821-11	METAL CHIP	1K	5%	1/16W	R285	1-216-855-11	METAL CHIP	680K	5%	1/16W
R207	1-216-821-11	METAL CHIP	1K	5%	1/16W	R286	1-216-845-11	METAL CHIP	100K	5%	1/16W
R208	1-216-833-11	METAL CHIP	10K	5%	1/16W	R287	1-216-821-11	METAL CHIP	1K	5%	1/16W
R209	1-216-833-11	METAL CHIP	10K	5%	1/16W	R288	1-216-841-11	METAL CHIP	47K	5%	1/16W
R210	1-216-821-11	METAL CHIP	1K	5%	1/16W	R289	1-216-841-11	METAL CHIP	47K	5%	1/16W
R219	1-216-864-11	METAL CHIP	0			R290	1-216-821-11	METAL CHIP	1K	5%	1/16W
R220	1-216-819-11	METAL CHIP	680	5%	1/16W	R295	1-216-821-11	METAL CHIP	1K	5%	1/16W
R221	△ 1-216-809-11	METAL CHIP	100	5%	1/16W	R296	1-216-814-11	METAL CHIP	270	5%	1/16W
R222	1-216-821-11	METAL CHIP	1K	5%	1/16W	R297	1-216-814-11	METAL CHIP	270	5%	1/16W
R223	1-216-821-11	METAL CHIP	1K	5%	1/16W	R298	1-216-817-11	METAL CHIP	470	5%	1/16W
R224	1-216-821-11	METAL CHIP	1K	5%	1/16W	R299	1-216-805-11	METAL CHIP	47	5%	1/16W
R225	1-216-851-11	METAL CHIP	330K	5%	1/16W	R300	1-216-833-11	METAL CHIP	10K	5%	1/16W
R230	1-216-864-11	METAL CHIP	0			R304	1-216-833-11	METAL CHIP	10K	5%	1/16W
R231	1-216-817-11	METAL CHIP	470	5%	1/16W	R306	1-216-833-11	METAL CHIP	10K	5%	1/16W
R242	1-216-841-11	METAL CHIP	47K	5%	1/16W	R308	1-216-833-11	METAL CHIP	10K	5%	1/16W
R244	1-216-821-11	METAL CHIP	1K	5%	1/16W	R310	1-216-833-11	METAL CHIP	10K	5%	1/16W
R245	1-216-821-11	METAL CHIP	1K	5%	1/16W	R312	1-216-833-11	METAL CHIP	10K	5%	1/16W
R246	1-216-833-11	METAL CHIP	10K	5%	1/16W	R320	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R247	1-216-833-11	METAL CHIP	10K	5%	1/16W	R321	1-216-833-11	METAL CHIP	10K	5%	1/16W
R248	1-216-833-11	METAL CHIP	10K	5%	1/16W	R322	1-216-845-11	METAL CHIP	100K	5%	1/16W
R249	1-216-833-11	METAL CHIP	10K	5%	1/16W	R324	1-216-843-11	METAL CHIP	68K	5%	1/16W
R250	1-216-596-11	METAL GLAZE	2.7K	1%	1/10W	R331	1-216-845-11	METAL CHIP	100K	5%	1/16W
R251	1-216-833-11	METAL CHIP	10K	5%	1/16W	R332	1-216-814-11	METAL CHIP	270	5%	1/16W
R252	1-216-845-11	METAL CHIP	100K	5%	1/16W	R333	1-216-806-11	METAL GLAZE	56	5%	1/16W
R253	1-216-833-11	METAL CHIP	10K	5%	1/16W	R334	1-216-821-11	METAL CHIP	1K	5%	1/16W
R254	1-216-833-11	METAL CHIP	10K	5%	1/16W	R335	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R255	1-216-821-11	METAL CHIP	1K	5%	1/16W	R336	1-216-833-11	METAL CHIP	10K	5%	1/16W
R256	1-216-833-11	METAL CHIP	10K	5%	1/16W	R338	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R257	1-216-833-11	METAL CHIP	10K	5%	1/16W	R339	1-216-857-11	METAL CHIP	1M	5%	1/16W
R258	1-216-833-11	METAL CHIP	10K	5%	1/16W	R340	1-216-837-11	METAL CHIP	22K	5%	1/16W
R266	1-216-845-11	METAL CHIP	100K	5%	1/16W	R341	1-216-838-11	METAL CHIP	27K	5%	1/16W
R267	1-216-833-11	METAL CHIP	10K	5%	1/16W	R342	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R269	1-216-843-11	METAL CHIP	68K	5%	1/16W	R343	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R270	1-216-839-11	METAL CHIP	33K	5%	1/16W	R344	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R271	1-216-861-11	METAL CHIP	2.2M	5%	1/16W	R345	1-216-826-11	METAL CHIP	2.7K	5%	1/16W
R272	△ 1-216-809-11	METAL CHIP	100	5%	1/16W	R346	1-216-826-11	METAL CHIP	2.7K	5%	1/16W
R273	1-216-845-11	METAL CHIP	100K	5%	1/16W	R347	1-216-833-11	METAL CHIP	10K	5%	1/16W
R274	1-216-845-11	METAL CHIP	100K	5%	1/16W	R348	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R275	1-216-833-11	METAL CHIP	10K	5%	1/16W	R349	1-216-837-11	METAL CHIP	22K	5%	1/16W
R276	1-216-851-11	METAL CHIP	330K	5%	1/16W	R350	1-216-839-11	METAL CHIP	33K	5%	1/16W
R277	1-216-845-11	METAL CHIP	100K	5%	1/16W	R351	1-216-845-11	METAL CHIP	100K	5%	1/16W
R278	1-216-845-11	METAL CHIP	100K	5%	1/16W	R352	1-216-847-11	METAL CHIP	150K	5%	1/16W
R279	1-216-845-11	METAL CHIP	100K	5%	1/16W	R356	1-216-822-11	METAL CHIP	1.2K	5%	1/16W
R280	1-216-845-11	METAL CHIP	100K	5%	1/16W	R357	1-216-840-11	METAL CHIP	39K	5%	1/16W

Note: The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

Ref. No.	Part No.	Description	Remark
R358	1-216-840-11	METAL CHIP 39K 5%	1/16W
R359	1-216-831-11	METAL CHIP 6.8K 5%	1/16W
R360	1-216-837-11	METAL CHIP 22K 5%	1/16W
R361	1-216-817-11	METAL CHIP 470 5%	1/16W
R364	1-216-815-11	METAL CHIP 330 5%	1/16W
R365	1-216-823-11	METAL CHIP 1.5K 5%	1/16W
R366	1-216-826-11	METAL CHIP 2.7K 5%	1/16W
R370	1-216-821-11	METAL CHIP 1K 5%	1/16W
R371	1-216-815-11	METAL CHIP 330 5%	1/16W
R372	1-216-825-11	METAL CHIP 2.2K 5%	1/16W
R373	1-216-825-11	METAL CHIP 2.2K 5%	1/16W
R374	1-216-833-11	METAL CHIP 10K 5%	1/16W
R375	1-216-814-11	METAL CHIP 270 5%	1/16W
R376	1-216-825-11	METAL CHIP 2.2K 5%	1/16W
R377	1-216-825-11	METAL CHIP 2.2K 5%	1/16W
R378	1-216-825-11	METAL CHIP 2.2K 5%	1/16W
< NETWORK RESISTOR >			
RB201	1-236-412-11	NETWORK, RES 1.0K	
RB202	1-236-424-11	NETWORK, RES 10K	
RB203	1-236-424-11	NETWORK, RES 10K	
RB204	1-236-424-11	NETWORK, RES 10K	
RB205	1-236-412-11	NETWORK, RES 1.0K	
RB208	1-236-424-11	NETWORK, RES 10K	
RB209	1-236-436-11	NETWORK, RES 100K	
RB210	1-236-436-11	NETWORK, RES 100K	
RB211	1-236-412-11	NETWORK, RES 1.0K	
RB212	1-236-424-11	NETWORK, RES 10K	
RB213	1-236-424-11	NETWORK, RES 10K	
RB214	1-236-436-11	NETWORK, RES 100K	
RB215	1-236-436-11	NETWORK, RES 100K	
< VARIABLE RESISTOR >			
RV301	1-238-089-11	RES, ADJ CERMET 4.7K	
RV302	1-238-092-11	RES, ADJ CERMET 47K	
< SWITCH >			
S201	1-571-787-11	SWITCH, TACTILE (RESET)	
S202	1-571-787-11	SWITCH, TACTILE (TITLE 1)	
S203	1-571-787-11	SWITCH, TACTILE (TITLE 2)	
S204	1-571-787-11	SWITCH, TACTILE (MEMORY)	
S205	1-571-787-11	SWITCH, TACTILE (COLOR/MODE)	
S206	1-571-787-11	SWITCH, TACTILE (DATE)	
S207	1-571-787-11	SWITCH, TACTILE (TIME)	
S208	1-571-787-11	SWITCH, TACTILE (ZERO MEM)	
S209	1-571-787-11	SWITCH, TACTILE (WHT BAL)	
S210	1-572-319-21	SWITCH, ROTARY (CONTROL)	
S211	1-571-787-11	SWITCH, TACTILE (EXPOSURE)	

Ref. No.	Part No.	Description	Remark
S212	1-571-787-11	SWITCH, TACTILE (PROGRAM AE)	
S213	1-571-787-41	SWITCH, TACTILE (FADER)	
S215	1-571-787-11	SWITCH, TACTILE (SHUTTER SPEED)	
S216	1-571-787-11	SWITCH, TACTILE (M)	
S217	1-571-754-11	SWITCH, PUSH (1 KEY) (AUTO LOCK)	
< THERMISTOR >			
TH300	1-800-200-00	THERMISTOR S-3K	
< TERMINAL >			
TP201	* 1-535-622-11	PIN, TERMINAL	
TP202	* 1-535-622-11	PIN, TERMINAL	
< CRYSTAL >			
X201	1-527-997-21	VIBRATOR, CRYSTAL (32.77KHz)	
X202	1-578-713-21	VIBLATOR, CERAMIC (4.19MHz)	
X203	1-577-163-21	VIBLATOR, CERAMIC (700KHz)	
X301	1-567-733-11	VIBRATOR, CRYSTAL	
X302	1-578-690-11	VIBRATOR, CERAMIC (500KHz)	

* A-7071-434-A FK-47 BOARD, COMPLETE			

(Ref. No 5,000 Series)			
< CONNECTOR >			
CN501	1-566-542-31	CONNECTOR, FPC (NON ZIF) 10P	
< DIODE >			
D501	8-719-940-45	DIODE MA159	
< SWITCH >			
S501	1-571-787-11	SWITCH, TACTILE (MENU)	
S502	1-571-787-11	SWITCH, TACTILE (SLOW)	
S503	1-571-787-11	SWITCH, TACTILE (PLAY)	
S504	1-571-787-11	SWITCH, TACTILE (FRAME +)	
S505	1-571-787-11	SWITCH, TACTILE (FRAME -)	
S506	1-571-787-11	SWITCH, TACTILE (PAUSE)	
S507	1-571-787-11	SWITCH, TACTILE (EXECUTE)	
S509	1-572-283-11	SWITCH, SLIDE (POWER)	
S510	1-571-787-11	SWITCH, TACTILE (STOP)	
S511	1-571-787-11	SWITCH, TACTILE (RIGHT)	
S512	1-571-787-11	SWITCH, TACTILE (DATA SCREEN)	
S513	1-571-787-11	SWITCH, TACTILE (FF)	
S514	1-571-787-11	SWITCH, TACTILE (LEFT)	
S515	1-571-787-11	SWITCH, TACTILE (SELECT)	
S516	1-571-787-11	SWITCH, TACTILE (REW)	
S517	1-571-787-11	SWITCH, TACTILE (EDITSEARCH +)	
S518	1-571-787-11	SWITCH, TACTILE (EDITSEARCH -)	

FP-376
FP-89
FP-90
FU-97

Ref. No.	Part No.	Description	Remark
	1-639-030-11	FP-376 FLEXIBLE BOARD ***** (Ref. No 5,000 Series)	
		< CAPACITOR >	
C601	1-126-154-11	ELECT 47uF 20% 6.3V	
		< DIODE >	
D601	8-719-812-41	LED TLR124, RED	
		< IC >	
IC601	8-741-100-63	IC SBX1619-51	
		< SWITCH >	
S601	1-554-371-51	SWITCH, TACT (REC START/STOP)	

	1-628-060-12	FP-89 FLEXIBLE BOARD ***** (Ref. No 5,000 Series)	
	3-728-869-02	HOLDER, SENSOR	
		< DIODE >	
D301	8-719-801-55	DIODE TLP907-0	
		< TRANSISTOR >	
Q301	8-729-906-48	TRANSISTOR EE-TP109	
		< SWITCH >	
S301	1-571-664-11	SWITCH, SLIDE (ENCODER)	
S303	1-571-099-11	SWITCH (CASSETTE DOWN)	

	1-628-061-12	FP-90 FLEXIBLE BOARD ***** (Ref. No 5,000 Series)	
	3-728-837-01	HOLDER, LED	
	3-728-869-02	HOLDER, SENSOR	
		< DIODE >	
D302	8-719-801-55	DIODE TLP907-0	
D303	8-719-940-81	DIODE GL-452S	
		< TRANSISTOR >	
Q302	8-729-906-48	TRANSISTOR EE-TP109	

Ref. No.	Part No.	Description	Remark
		< SWITCH >	
S302	1-571-680-11	SWITCH, PUSE (3 KEY)	
S303	1-571-099-11	SWITCH (CASSETTE DOWN)	

	* A-7062-793-A	FU-97 BOARD, COMPLETE ***** (Ref. No 7,000 Series)	
		< CAPACITOR >	
C101	1-124-604-00	ELECT 330uF 20% 10V	
C102	1-128-292-11	ELECT 220uF 20% 10V	
C103	1-128-078-11	ELECT 33uF 20% 10V	
C104	1-124-584-00	ELECT 100uF 20% 10V	
C105	1-124-584-00	ELECT 100uF 20% 10V	
C106	1-127-561-11	ELECT (SOLID) 33uF 20% 10V	
C107	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
C108	1-127-558-11	ELECT (SOLID) 10uF 20% 10V	
C109	1-127-558-11	ELECT (SOLID) 10uF 20% 10V	
C110	1-127-558-11	ELECT (SOLID) 10uF 20% 10V	
C111	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
C112	1-164-161-11	CERAMIC CHIP 0.0022uF 10% 100V	
C113	1-163-809-11	CERAMIC CHIP 0.047uF 10% 25V	
C114	1-163-809-11	CERAMIC CHIP 0.047uF 10% 25V	
C115	1-163-809-11	CERAMIC CHIP 0.047uF 10% 25V	
C116	1-164-161-11	CERAMIC CHIP 0.0022uF 10% 100V	
C117	1-163-005-11	CERAMIC CHIP 470PF 10% 50V	
C118	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
C119	1-163-119-00	CERAMIC CHIP 120PF 5% 50V	
C120	1-163-809-11	CERAMIC CHIP 0.047uF 10% 25V	
C121	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
C122	1-127-561-11	ELECT (SOLID) 33uF 20% 10V	
C124	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
C125	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
C126	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
C127	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
		< CONNECTOR >	
CN101	1-566-757-11	PIN, CONNECTOR (PC BOARD) 2P	
CN102	1-569-557-11	CONNECTOR, BOARD TO BOARD 20P	
CN103	1-566-757-11	PIN, CONNECTOR (PC BOARD) 2P	
		< DIODE >	
D101	8-719-981-59	DIODE FC805	
D102	8-719-981-56	DIODE SB05W05C-P	
D103	8-719-922-21	DIODE AR2222S	

FU-97

LI-33

MC-63

Ref. No.	Part No.	Description	Remark
		< IC >	
IC101	8-759-035-98	IC MC141600FU	
		< JACK >	
J101	1-537-241-11	TERMINAL BOARD (BATTERY)	
		< COIL >	
L101	1-410-337-11	INDUCTOR 1uH	
L102	1-410-337-11	INDUCTOR 1uH	
L103	1-410-337-11	INDUCTOR 1uH	
L104	1-424-104-11	COIL, CHOKE 10uH	
L105	1-424-104-11	COIL, CHOKE 10uH	
L106	1-424-106-11	COIL, CHOKE 47uH	
L107	1-424-105-11	COIL, CHOKE 22uH	
L108	1-424-106-11	COIL, CHOKE 47uH	
L110	1-412-029-11	INDUCTOR, CHIP 10uH	
L111	1-412-029-11	INDUCTOR, CHIP 10uH	
L112	1-412-029-11	INDUCTOR, CHIP 10uH	
L113	1-412-027-11	INDUCTOR, CHIP 2.2uH	
		< IC LINK >	
PS101	△ 1-532-840-21	LINK, IC 1.25A	
PS102	△ 1-532-841-21	LINK, IC 1.6A	
PS103	△ 1-532-840-21	LINK, IC 1.25A	
		< TRANSISTOR >	
Q101	8-729-805-25	TRANSISTOR 2SB1121	
Q102	8-729-822-60	TRANSISTOR 2SB1302	
Q103	8-729-805-25	TRANSISTOR 2SB1121	
		< RESISTOR >	
R101	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R102	1-216-093-00	METAL CHIP 68K 5% 1/10W	
R103	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R104	1-216-033-00	METAL CHIP 220 5% 1/10W	
R105	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R106	1-216-077-00	METAL CHIP 15K 5% 1/10W	
R107	1-216-033-00	METAL CHIP 220 5% 1/10W	
R108	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R109	1-216-033-00	METAL CHIP 220 5% 1/10W	
R110	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R111	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R112	1-216-069-00	METAL CHIP 6.8K 5% 1/10W	
R113	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R114	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R115	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R116	1-216-081-00	METAL CHIP 22K 5% 1/10W	

Ref. No.	Part No.	Description	Remark
R117	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R118	1-216-093-00	METAL CHIP 68K 5% 1/10W	
R119	1-216-041-00	METAL CHIP 470 5% 1/10W	
		< VARIABLE RESISTOR >	
RV101	1-238-088-11	RES. ADJ. CERMET 2.2K	
RV102	1-238-092-11	RES. ADJ. CERMET 47K	
		< SWITCH >	
S101	1-572-284-11	SWITCH, SLIDE (EJECT)	

* A-7071-435-A LI-33 BOARD, COMPLETE			

(Ref. No 5,000 Series)			
		< CONNECTOR >	
CN603	1-580-057-11	PIN, CONNECTOR 4P	
		< JACK >	
J603	1-550-104-11	HOLDER, BATTERY	

* A-7062-800-A MC-63 BOARD, COMPLETE			

(Ref. No 6,000 Series)			
		< CAPACITOR >	
C801	1-126-205-11	ELECT CHIP 47uF 20% 6.3V	
C802	1-164-633-11	CERAMIC CHIP 0.1uF 10% 25V	
C803	1-162-638-11	CERAMIC CHIP 1uF 16V	
C804	1-164-633-11	CERAMIC CHIP 0.1uF 10% 25V	
C805	1-163-989-11	CERAMIC CHIP 0.033uF 10% 25V	
C806	1-162-962-11	CERAMIC CHIP 470PF 10% 50V	
C807	1-163-037-11	CERAMIC CHIP 0.022uF 10% 25V	
C808	1-164-633-11	CERAMIC CHIP 0.1uF 10% 25V	
C809	1-162-638-11	CERAMIC CHIP 1uF 16V	
C810	1-164-633-11	CERAMIC CHIP 0.1uF 10% 25V	
C811	1-163-989-11	CERAMIC CHIP 0.033uF 10% 25V	
C812	1-163-037-11	CERAMIC CHIP 0.022uF 10% 25V	
C813	1-162-962-11	CERAMIC CHIP 470PF 10% 50V	
C815	1-126-206-11	ELECT CHIP 100uF 20% 6.3V	
C816	1-162-953-11	CERAMIC CHIP 100PF 5% 50V	
C817	1-162-953-11	CERAMIC CHIP 100PF 5% 50V	
C818	1-162-953-11	CERAMIC CHIP 100PF 5% 50V	
C819	1-162-966-11	CERAMIC CHIP 0.0022uF 10% 50V	
C820	1-162-966-11	CERAMIC CHIP 0.0022uF 10% 50V	
C821	1-162-953-11	CERAMIC CHIP 100PF 5% 50V	

Note: The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

MC-63

SS-134

Ref. No.	Part No.	Description	Remark
C822	1-162-953-11	CERAMIC CHIP 100PF 5% 50V	
C823	1-162-953-11	CERAMIC CHIP 100PF 5% 50V	
C824	1-162-953-11	CERAMIC CHIP 100PF 5% 50V	
C825	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C826	1-162-963-11	CERAMIC CHIP 680PF 10% 50V	
C827	1-162-963-11	CERAMIC CHIP 680PF 10% 50V	
C828	1-164-633-11	CERAMIC CHIP 0.1uF 10% 25V	
C829	1-164-633-11	CERAMIC CHIP 0.1uF 10% 25V	

< CONNECTOR >

CN802 * 1-565-529-21 PIN, CONNECTOR (PC BOARD) 4P

< DIODE >

D801	8-719-404-46	DIODE MA110
D802	8-719-977-22	DIODE DT29.1

< IC >

IC801	8-759-823-42	IC LA7470M
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< JACK >

J801	1-507-899-00	JACK (SMALL TYPE) (EXT MIC)
J802	1-563-454-11	JACK, MINIATURE (DC OUT)

< COIL >

L801	1-410-369-11	INDUCTOR CHIP 1uH
L802	1-410-369-11	INDUCTOR CHIP 1uH
L803	1-410-369-11	INDUCTOR CHIP 1uH
L804	1-410-369-11	INDUCTOR CHIP 1uH
L805	1-410-369-11	INDUCTOR CHIP 1uH

< TRANSISTOR >

Q801	8-729-905-18	TRANSISTOR DTC144EU
Q802	8-729-905-35	TRANSISTOR 2SC4081-R

< RESISTOR >

R801	1-216-831-11	METAL CHIP 6.8K 5% 1/16W
R802	1-216-819-11	METAL CHIP 680 5% 1/16W
R803	1-216-835-11	METAL CHIP 15K 5% 1/16W
R804	1-216-837-11	METAL CHIP 22K 5% 1/16W
R805	1-216-836-11	METAL CHIP 18K 5% 1/16W
R806	1-216-833-11	METAL CHIP 10K 5% 1/16W
R807	1-216-831-11	METAL CHIP 6.8K 5% 1/16W
R808	1-216-835-11	METAL CHIP 15K 5% 1/16W
R809	1-216-819-11	METAL CHIP 680 5% 1/16W
R810	1-216-837-11	METAL CHIP 22K 5% 1/16W
R811	1-216-836-11	METAL CHIP 18K 5% 1/16W
R812	1-216-837-11	METAL CHIP 22K 5% 1/16W
R815	1-216-841-11	METAL CHIP 47K 5% 1/16W

Ref. No.	Part No.	Description	Remark
R816	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R818	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R819	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R820	1-216-834-11	METAL CHIP 12K 5% 1/16W	
R821	1-216-834-11	METAL CHIP 12K 5% 1/16W	
R822	1-216-835-11	METAL CHIP 15K 5% 1/16W	
R823	1-216-819-11	METAL CHIP 680 5% 1/16W	
R824	1-216-835-11	METAL CHIP 15K 5% 1/16W	
R825	1-216-819-11	METAL CHIP 680 5% 1/16W	

< SWITCH >

S801 1-553-977-00 SWITCH, SLIDE (BUILT IN MIC)

* A-7062-794-A SS-134 BOARD, COMPLETE

(Ref. No 2,000 Series)

* 1-535-622-11 PIN, TERMINAL

3-719-381-01 SCREW (M2X4)

* 3-744-790-01 LID, REAR, RP SHIELD

* 3-941-127-01 CASE (2), RP SHIELD

< CAPACITOR >

C001	1-162-916-11	CERAMIC CHIP 12PF 5% 50V
C002	1-162-916-11	CERAMIC CHIP 12PF 5% 50V
C003	1-163-038-00	CERAMIC CHIP 0.1uF 25V
C004	1-126-602-11	ELECT CHIP 3.3uF 20% 50V
C005	1-163-035-00	CERAMIC CHIP 0.047uF 50V
C006	1-162-974-11	CERAMIC CHIP 0.01uF 50V
C010	1-124-242-00	ELECT 33uF 20% 25V
C011	1-126-163-11	ELECT 4.7uF 20% 50V
C012	1-162-947-11	CERAMIC CHIP 33PF 5% 50V
C013	1-163-035-00	CERAMIC CHIP 0.047uF 50V
C014	1-164-633-11	CERAMIC CHIP 0.1uF 10% 25V
C015	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V
C016	1-162-969-11	CERAMIC CHIP 0.0068uF 10% 25V
C018	1-136-718-11	FILM, CHIP 0.1uF 5% 25V
C019	1-164-633-11	CERAMIC CHIP 0.1uF 10% 25V
C020	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V
C021	1-162-967-11	CERAMIC CHIP 0.0033uF 10% 50V
C022	1-162-967-11	CERAMIC CHIP 0.0033uF 10% 50V
C023	1-162-967-11	CERAMIC CHIP 0.0033uF 10% 50V
C025	1-128-006-11	ELECT CHIP 4.7uF 20% 25V
C026	1-164-330-21	CERAMIC CHIP 0.22uF 10% 16V
C027	1-164-330-21	CERAMIC CHIP 0.22uF 10% 16V
C028	1-135-216-11	TANTALUM CHIP 10uF 20% 10V
C030	1-135-177-21	TANTALUM CHIP 1uF 20% 20V
C031	1-135-216-11	TANTALUM CHIP 10uF 20% 10V

Ref. No.	Part No.	Description	Remark		
C032	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V
C033	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C034	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C035	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C036	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C037	1-162-638-11	CERAMIC CHIP	1uF		16V
C038	1-135-216-11	TANTALUM CHIP	10uF	20%	10V
C039	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C041	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C044	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C045	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C046	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C048	1-128-004-11	ELECT CHIP	10uF	20%	16V
C101	1-162-921-11	CERAMIC CHIP	33PF	5%	50V
C103	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C105	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C106	1-124-779-00	ELECT CHIP	10uF	20%	16V
C110	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C111	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C112	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C113	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C114	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C115	1-162-997-11	CERAMIC CHIP	10PF	0.5PF	50V
C116	1-163-123-00	CERAMIC CHIP	180PF	5%	50V
C118	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C119	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C150	1-162-921-11	CERAMIC CHIP	33PF	5%	50V
C151	1-162-921-11	CERAMIC CHIP	33PF	5%	50V
C152	1-128-004-11	ELECT CHIP	10uF	20%	16V
C153	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C154	1-128-006-11	ELECT CHIP	4.7uF	20%	25V
C155	1-164-634-11	CERAMIC CHIP	1uF		16V
C156	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C157	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C158	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C159	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C160	1-162-960-11	CERAMIC CHIP	220PF	10%	50V
C161	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C162	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V
C163	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C165	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V
C166	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C167	1-162-638-11	CERAMIC CHIP	1uF		16V
C168	1-162-638-11	CERAMIC CHIP	1uF		16V
C169	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C170	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C171	1-162-950-11	CERAMIC CHIP	56PF	5%	50V
C172	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C173	1-162-945-11	CERAMIC CHIP	22PF	5%	50V

Ref. No.	Part No.	Description	Remark		
C175	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C176	1-162-965-11	CERAMIC CHIP	0.0015uF	10%	50V
C177	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C178	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C180	1-164-634-11	CERAMIC CHIP	1uF		16V
C183	1-128-004-11	ELECT CHIP	10uF	20%	16V
C201	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C208	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C211	1-162-950-11	CERAMIC CHIP	56PF	5%	50V
C212	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C213	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C214	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C215	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C216	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C219	1-162-940-11	CERAMIC CHIP	9PF	0.5PF	50V
C222	1-162-938-11	CERAMIC CHIP	7PF	0.5PF	50V
C224	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C225	1-162-955-11	CERAMIC CHIP	150PF	5%	50V
C226	1-162-952-11	CERAMIC CHIP	82PF	5%	50V
C227	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C228	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C229	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C230	1-128-004-11	ELECT CHIP	10uF	20%	16V
C231	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C232	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C233	1-162-947-11	CERAMIC CHIP	33PF	5%	50V
C234	1-162-965-11	CERAMIC CHIP	0.0015uF	10%	50V
C235	1-162-958-11	CERAMIC CHIP	270PF	5%	50V
C236	1-162-958-11	CERAMIC CHIP	270PF	5%	50V
C237	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C238	1-162-945-11	CERAMIC CHIP	22PF	5%	50V
C240	1-162-948-11	CERAMIC CHIP	39PF	5%	50V
C241	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C242	1-162-948-11	CERAMIC CHIP	39PF	5%	50V
C243	1-162-948-11	CERAMIC CHIP	39PF	5%	50V
C244	1-162-950-11	CERAMIC CHIP	56PF	5%	50V
C245	1-162-949-11	CERAMIC CHIP	47PF	5%	50V
C246	1-162-949-11	CERAMIC CHIP	47PF	5%	50V
C249	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C250	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C252	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C255	1-162-954-11	CERAMIC CHIP	120PF	5%	50V
C256	1-162-951-11	CERAMIC CHIP	68PF	5%	50V
C257	1-162-955-11	CERAMIC CHIP	150PF	5%	50V
C258	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C261	1-162-938-11	CERAMIC CHIP	7PF	0.5PF	50V
C262	1-162-952-11	CERAMIC CHIP	82PF	5%	50V
C263	1-135-157-21	TANTALUM CHIP	10uF	20%	6.3V
C264	1-162-950-11	CERAMIC CHIP	56PF	5%	50V

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Ref. No.	Part No.	Description	Remark
C265	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C267	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C268	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C269	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C270	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C271	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C272	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C273	1-128-004-11	ELECT CHIP 10uF 20%	16V
C274	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C275	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C276	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C277	1-162-945-11	CERAMIC CHIP 22PF 5%	50V
C278	1-163-105-00	CERAMIC CHIP 33PF 5%	50V
C279	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C280	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C281	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C282	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C283	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C284	1-162-936-11	CERAMIC CHIP 5PF 0.25PF	50V
C285	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C286	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C288	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
C289	1-128-004-11	ELECT CHIP 10uF 20%	16V
C290	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C291	1-128-004-11	ELECT CHIP 10uF 20%	16V
C292	1-163-809-11	CERAMIC CHIP 0.047uF 10%	25V
C293	1-162-964-11	CERAMIC CHIP 0.001uF 10%	50V
C294	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C295	1-163-035-00	CERAMIC CHIP 0.047uF	50V
C296	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C297	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C298	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C299	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C300	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C301	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C302	1-162-964-11	CERAMIC CHIP 0.001uF 10%	50V
C303	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C304	1-128-004-11	ELECT CHIP 10uF 20%	16V
C305	1-162-966-11	CERAMIC CHIP 0.0022uF 10%	50V
C308	1-128-011-11	ELECT CHIP 0.33uF 20%	50V
C309	1-162-964-11	CERAMIC CHIP 0.001uF 10%	50V
C310	1-162-965-11	CERAMIC CHIP 0.0015uF 10%	50V
C317	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C318	1-128-004-11	ELECT CHIP 10uF 20%	16V
C319	1-163-809-11	CERAMIC CHIP 0.047uF 10%	25V
C320	1-128-004-11	ELECT CHIP 10uF 20%	16V
C321	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V

Ref. No.	Part No.	Description	Remark
C322	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C323	1-128-008-11	ELECT CHIP 3.3uF 20%	35V
C324	1-162-953-11	CERAMIC CHIP 100PF 5%	50V
C329	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C330	1-163-035-00	CERAMIC CHIP 0.047uF	50V
C332	1-126-425-11	ELECT 10uF 20%	10V
C333	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C334	1-164-633-11	CERAMIC CHIP 0.1uF 10%	25V
C335	1-126-205-11	ELECT CHIP 47uF 20%	6.3V
C336	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C337	1-162-950-11	CERAMIC CHIP 56PF 5%	50V
C338	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
C340	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C341	1-162-957-11	CERAMIC CHIP 220PF 5%	50V
C342	1-163-809-11	CERAMIC CHIP 0.047uF 10%	25V
C345	1-163-809-11	CERAMIC CHIP 0.047uF 10%	25V
C346	1-163-809-11	CERAMIC CHIP 0.047uF 10%	25V
C347	1-162-943-11	CERAMIC CHIP 15PF 5%	50V

< CONNECTOR >

CN003	1-569-558-11	CONNECTOR, BOARD TO BOARD 20P
CN004	1-565-878-11	PIN, CONNECTOR (PC BOARD) 6P
CN005	1-569-532-11	HOUSING, CONNECTOR 30P
CN007	1-566-531-11	CONNECTOR, FPC (ZIF) 15P
CN200	* 1-566-184-11	PIN, CONNECTOR (PC BOARD) 5P

< TRIMMER >

CT101	1-141-368-11	CAP, CHIP TRIMMER
CT102	1-141-368-11	CAP, CHIP TRIMMER

< DIODE >

D001	8-719-941-86	DIODE DAN202U
D002	8-719-404-46	DIODE MA110
D101	8-719-949-46	DIODE 1T32
D202	8-719-941-86	DIODE DAN202U
D203	8-719-941-86	DIODE DAN202U
D205	8-719-404-46	DIODE MA110
D208	8-719-941-86	DIODE DAN202U
D210	8-719-941-86	DIODE DAN202U
D211	8-719-941-86	DIODE DAN202U

< HIC >

HIC201	A-7068-183-A	HR-10 BOARD, COMPLETE (HIC)
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< IC >

IC001	8-752-830-81	IC CXP80116-8370
IC003	8-759-998-98	IC LM358D
IC004	8-759-148-05	IC CXA8010M

Ref. No.	Part No.	Description	Remark
IC005	8-759-823-65	IC MCD002AM	
IC006	8-759-990-55	IC CXA8006M	
IC007	8-759-008-95	IC MC140288F	
IC008	8-759-748-72	IC BR93C46F	
IC101	8-759-970-80	IC MB673198U	
IC102	8-759-153-41	IC uPD6451AGT-611-E1	
IC104	8-759-234-20	IC TC7S08F	
IC150	8-752-035-48	IC CXA1204Q	
IC201	8-759-012-00	IC MC10H116M	
IC202	8-759-998-92	IC LM393D	
IC204	8-759-998-32	IC CXD2107M	
IC205	8-759-148-49	IC CXA1443N	
< COIL >			
L001	1-412-058-11	INDUCTOR, CHIP 10uH	
L101	1-410-388-21	INDUCTOR, CHIP 39uH	
L102	1-410-393-11	INDUCTOR, CHIP 100uH	
L103	1-408-797-11	INDUCTOR, CHIP 470uH	
L150	1-412-058-11	INDUCTOR, CHIP 10uH	
L151	1-408-795-21	INDUCTOR, CHIP 330uH	
L152	1-412-058-11	INDUCTOR, CHIP 10uH	
L201	1-410-389-31	INDUCTOR, CHIP 47uH	
L205	1-410-384-31	INDUCTOR, CHIP 18uH	
L206	1-410-384-31	INDUCTOR, CHIP 18uH	
L207	1-410-381-11	INDUCTOR, CHIP 10uH	
L208	1-408-793-21	INDUCTOR, CHIP 220uH	
L209	1-408-795-21	INDUCTOR, CHIP 330uH	
L210	1-410-167-41	INDUCTOR, CHIP 820uH	
L211	1-410-387-11	INDUCTOR, CHIP 33uH	
L212	1-410-657-21	INDUCTOR, CHIP 180uH	
L214	1-410-387-11	INDUCTOR, CHIP 33uH	
L215	1-410-374-11	INDUCTOR, CHIP 2.7uH	
L216	1-410-381-11	INDUCTOR, CHIP 10uH	
L217	1-410-380-31	INDUCTOR, CHIP 8.2uH	
L218	1-410-379-21	INDUCTOR, CHIP 6.8uH	
L221	1-408-791-00	INDUCTOR, CHIP 150uH	
L222	1-408-795-21	INDUCTOR, CHIP 330uH	
L224	1-410-380-31	INDUCTOR, CHIP 8.2uH	
L225	1-412-058-11	INDUCTOR, CHIP 10uH	
L226	1-410-380-31	INDUCTOR, CHIP 8.2uH	
L227	1-412-058-11	INDUCTOR, CHIP 10uH	
L228	1-410-379-21	INDUCTOR, CHIP 6.8uH	
L229	1-410-382-31	INDUCTOR, CHIP 12uH	
L230	1-410-657-21	INDUCTOR, CHIP 180uH	
L231	1-412-058-11	INDUCTOR, CHIP 10uH	
L232	1-410-386-11	INDUCTOR, CHIP 27uH	
L233	1-410-381-11	INDUCTOR, CHIP 10uH	
L234	1-216-296-00	METAL CHIP 0	5% 1/8W
L235	1-412-058-11	INDUCTOR, CHIP 10uH	

Ref. No.	Part No.	Description	Remark
L236	1-412-058-11	INDUCTOR, CHIP 10uH	
< IC LINK >			
PS101	1-532-605-00	LINK, IC 0.4A (ICP-N10)	
< TRANSISTOR >			
Q001	8-729-907-00	TRANSISTOR DTC114EU	
Q002	8-729-905-12	TRANSISTOR DTA144EU	
Q003	8-729-905-18	TRANSISTOR DTC144EU	
Q004	8-729-820-47	TRANSISTOR 2SB1202FAT	
Q005	8-729-905-35	TRANSISTOR 2SC4081-R	
Q007	8-729-905-35	TRANSISTOR 2SC4081-R	
Q008	8-729-905-35	TRANSISTOR 2SC4081-R	
Q009	8-729-905-35	TRANSISTOR 2SC4081-R	
Q010	8-729-907-03	TRANSISTOR FMG5	
Q011	8-729-905-18	TRANSISTOR DTC144EU	
Q012	8-729-905-18	TRANSISTOR DTC144EU	
Q014	8-729-822-48	TRANSISTOR FC101	
Q017	8-729-907-03	TRANSISTOR FMG5	
Q018	8-729-905-18	TRANSISTOR DTC144EU	
Q023	8-729-921-08	TRANSISTOR DTC144TU	
Q150	8-729-905-23	TRANSISTOR 2SA1576-R	
Q151	8-729-905-18	TRANSISTOR DTC144EU	
Q152	8-729-905-35	TRANSISTOR 2SC4081-R	
Q153	8-729-905-23	TRANSISTOR 2SA1576-R	
Q202	8-729-905-35	TRANSISTOR 2SC4081-R	
Q203	8-729-905-35	TRANSISTOR 2SC4081-R	
Q213	8-729-216-22	TRANSISTOR 2SA1162G	
Q214	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q215	8-729-216-22	TRANSISTOR 2SA1162G	
Q217	8-729-102-07	TRANSISTOR 2SC2223-F13	
Q218	8-729-905-35	TRANSISTOR 2SC4081-R	
Q219	8-729-905-35	TRANSISTOR 2SC4081-R	
Q221	8-729-905-35	TRANSISTOR 2SC4081-R	
Q222	8-729-907-00	TRANSISTOR DTC114EU	
Q223	8-729-905-35	TRANSISTOR 2SC4081-R	
Q224	8-729-904-07	TRANSISTOR FMG2	
Q225	8-729-905-45	TRANSISTOR DTA143EU	
Q227	8-729-905-35	TRANSISTOR 2SC4081-R	
Q229	8-729-141-48	TRANSISTOR 2SB624-BV345	
Q230	8-729-141-48	TRANSISTOR 2SB624-BV345	
Q231	8-729-905-18	TRANSISTOR DTC144EU	
Q232	8-729-905-18	TRANSISTOR DTC144EU	
Q233	8-729-102-07	TRANSISTOR 2SC2223-F13	
Q234	8-729-102-07	TRANSISTOR 2SC2223-F13	
Q238	8-729-117-31	TRANSISTOR 2SC4177-L5	
Q239	8-729-905-18	TRANSISTOR DTC144EU	
Q240	8-729-905-18	TRANSISTOR DTC144EU	

Note: The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
Q242	8-729-117-31	TRANSISTOR	2SC4177-L5	R011	1-216-833-11	METAL CHIP	10K 5% 1/16W
Q243	8-729-905-18	TRANSISTOR	DTC144EU	R012	1-216-821-11	METAL CHIP	1K 5% 1/16W
Q244	8-729-140-63	TRANSISTOR	2SA1611-M5	R013	1-216-864-11	METAL CHIP	0
Q245	8-729-117-31	TRANSISTOR	2SC4177-L5	R014	1-216-851-11	METAL CHIP	330K 5% 1/16W
Q246	8-729-905-18	TRANSISTOR	DTC144EU	R015	1-216-841-11	METAL CHIP	47K 5% 1/16W
Q247	8-729-905-35	TRANSISTOR	2SC4081-R	R016	1-216-833-11	METAL CHIP	10K 5% 1/16W
Q248	8-729-903-10	TRANSISTOR	FMW1	R017	1-216-827-11	METAL CHIP	3.3K 5% 1/16W
Q249	8-729-905-18	TRANSISTOR	DTC144EU	R018	1-216-850-11	METAL CHIP	270K 5% 1/16W
Q250	8-729-905-12	TRANSISTOR	DTA144EU	R019	1-216-851-11	METAL CHIP	330K 5% 1/16W
Q251	8-729-905-35	TRANSISTOR	2SC4081-R	R021	1-216-833-11	METAL CHIP	10K 5% 1/16W
Q252	8-729-102-07	TRANSISTOR	2SC2223-F13	R022	1-216-025-00	METAL CHIP	100 5% 1/10W
Q254	8-729-905-35	TRANSISTOR	2SC4081-R	R023	1-216-827-11	METAL CHIP	3.3K 5% 1/16W
Q255	8-729-904-07	TRANSISTOR	FMG2	R024	1-216-829-11	METAL CHIP	4.7K 5% 1/16W
Q256	8-729-905-12	TRANSISTOR	DTA144EU	R025	1-216-837-11	METAL CHIP	22K 5% 1/16W
Q257	8-729-905-18	TRANSISTOR	DTC144EU	R029	1-216-833-11	METAL CHIP	10K 5% 1/16W
Q258	8-729-903-10	TRANSISTOR	FMW1	R030	1-216-833-11	METAL CHIP	10K 5% 1/16W
Q259	8-729-905-35	TRANSISTOR	2SC4081-R	R031	1-216-821-11	METAL CHIP	1K 5% 1/16W
Q260	8-729-905-35	TRANSISTOR	2SC4081-R	R032	1-216-037-00	METAL CHIP	330 5% 1/10W
Q261	8-729-905-23	TRANSISTOR	2SA1576-R	R033	1-216-821-11	METAL CHIP	1K 5% 1/16W
Q262	8-729-905-23	TRANSISTOR	2SA1576-R	R034	1-216-845-11	METAL CHIP	100K 5% 1/16W
Q263	8-729-907-26	TRANSISTOR	IMX1	R035	1-216-097-00	METAL CHIP	100K 5% 1/10W
Q265	8-729-905-35	TRANSISTOR	2SC4081-R	R036	1-216-845-11	METAL CHIP	100K 5% 1/16W
Q266	8-729-905-35	TRANSISTOR	2SC4081-R	R037	1-216-097-00	METAL CHIP	100K 5% 1/10W
Q267	8-729-905-35	TRANSISTOR	2SC4081-R	R038	1-216-833-11	METAL CHIP	10K 5% 1/16W
Q268	8-729-905-23	TRANSISTOR	2SA1576-R	R039	1-216-833-11	METAL CHIP	10K 5% 1/16W
Q269	8-729-907-26	TRANSISTOR	IMX1	R040	1-216-833-11	METAL CHIP	10K 5% 1/16W
Q270	8-729-905-12	TRANSISTOR	DTA144EU	R041	1-216-830-11	METAL CHIP	5.6K 5% 1/16W
Q272	8-729-922-94	TRANSISTOR	DTC143TU	R042	1-216-864-11	METAL CHIP	0
Q273	8-729-141-48	TRANSISTOR	2SB624-BV345	R043	1-217-671-11	METAL CHIP	1 5% 1/10W
Q277	8-729-905-35	TRANSISTOR	2SC4081-R	R044	1-217-671-11	METAL CHIP	1 5% 1/10W
Q278	8-729-905-35	TRANSISTOR	2SC4081-R	R045	1-217-671-11	METAL CHIP	1 5% 1/10W
Q279	8-729-905-18	TRANSISTOR	DTC144EU	R046	1-217-671-11	METAL CHIP	1 5% 1/10W
Q280	8-729-905-35	TRANSISTOR	2SC4081-R	R049	1-216-841-11	METAL CHIP	47K 5% 1/16W
Q291	8-729-907-26	TRANSISTOR	IMX1	R050	1-216-835-11	METAL CHIP	15K 5% 1/16W
Q295	8-729-905-35	TRANSISTOR	2SC4081-R	R051	1-216-846-11	METAL CHIP	120K 5% 1/16W
< RESISTOR >				R053	1-216-833-11	METAL CHIP	10K 5% 1/16W
R001	1-216-845-11	METAL CHIP	100K 5% 1/16W	R054	1-216-838-11	METAL CHIP	27K 5% 1/16W
R002	1-216-845-11	METAL CHIP	100K 5% 1/16W	R055	1-216-838-11	METAL CHIP	27K 5% 1/16W
R003	1-216-845-11	METAL CHIP	100K 5% 1/16W	R056	1-216-838-11	METAL CHIP	27K 5% 1/16W
R004	1-216-845-11	METAL CHIP	100K 5% 1/16W	R057	1-216-336-11	METAL CHIP	47K 1% 1/10W
R005	1-216-845-11	METAL CHIP	100K 5% 1/16W	R058	1-216-336-11	METAL CHIP	47K 1% 1/10W
R006	1-216-829-11	METAL CHIP	4.7K 5% 1/16W	R059	1-216-826-11	METAL CHIP	2.7K 5% 1/16W
R007	1-216-845-11	METAL CHIP	100K 5% 1/16W	R060	1-216-845-11	METAL CHIP	100K 5% 1/16W
R008	1-216-829-11	METAL CHIP	4.7K 5% 1/16W	R061	1-216-833-11	METAL CHIP	10K 5% 1/16W
R009	1-216-818-11	METAL CHIP	560 5% 1/16W	R063	1-216-037-00	METAL CHIP	330 5% 1/10W
R010	1-216-833-11	METAL CHIP	10K 5% 1/16W	R066	1-216-857-11	METAL CHIP	1M 5% 1/16W
				R068	1-216-831-11	METAL CHIP	6.8K 5% 1/16W
				R070	1-216-845-11	METAL CHIP	100K 5% 1/16W
				R073	1-216-829-11	METAL CHIP	4.7K 5% 1/16W

Ref. No.	Part No.	Description	Remark			Ref. No.	Part No.	Description	Remark		
R074	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	R148	1-216-837-11	METAL CHIP	22K	5%	1/16W
R075	1-216-839-11	METAL CHIP	33K	5%	1/16W	R150	1-216-857-11	METAL CHIP	1M	5%	1/16W
R076	1-216-824-11	METAL CHIP	1.8K	5%	1/16W						
R077	1-216-837-11	METAL CHIP	22K	5%	1/16W	R151	1-216-820-11	METAL CHIP	820	5%	1/16W
R078	1-216-821-11	METAL CHIP	1K	5%	1/16W	R152	1-216-817-11	METAL CHIP	470	5%	1/16W
R080	1-216-837-11	METAL CHIP	22K	5%	1/16W	R153	1-216-817-11	METAL CHIP	470	5%	1/16W
						R154	1-216-839-11	METAL CHIP	33K	5%	1/16W
R081	1-216-864-11	METAL CHIP	0			R155	1-216-818-11	METAL CHIP	560	5%	1/16W
R082	1-216-833-11	METAL CHIP	10K	5%	1/16W						
R083	1-216-833-11	METAL CHIP	10K	5%	1/16W	R156	1-216-814-11	METAL CHIP	270	5%	1/16W
R084	1-216-833-11	METAL CHIP	10K	5%	1/16W	R157	1-216-840-11	METAL CHIP	39K	5%	1/16W
R085	1-216-833-11	METAL CHIP	10K	5%	1/16W	R158	1-216-812-11	METAL CHIP	180	5%	1/16W
						R161	1-216-841-11	METAL CHIP	47K	5%	1/16W
R086	1-216-833-11	METAL CHIP	10K	5%	1/16W	R162	1-216-835-11	METAL CHIP	15K	5%	1/16W
R087	1-216-833-11	METAL CHIP	10K	5%	1/16W						
R088	1-216-833-11	METAL CHIP	10K	5%	1/16W	R163	1-216-837-11	METAL CHIP	22K	5%	1/16W
R089	1-216-833-11	METAL CHIP	10K	5%	1/16W	R164	1-216-837-11	METAL CHIP	22K	5%	1/16W
R090	1-216-833-11	METAL CHIP	10K	5%	1/16W	R165	1-216-833-11	METAL CHIP	10K	5%	1/16W
						R166	1-216-833-11	METAL CHIP	10K	5%	1/16W
R095	1-216-821-11	METAL CHIP	1K	5%	1/16W	R167	1-216-837-11	METAL CHIP	22K	5%	1/16W
R097	1-216-833-11	METAL CHIP	10K	5%	1/16W						
R098	1-216-833-11	METAL CHIP	10K	5%	1/16W	R168	1-216-833-11	METAL CHIP	10K	5%	1/16W
R099	1-216-845-11	METAL CHIP	100K	5%	1/16W	R169	1-216-832-11	METAL CHIP	8.2K	5%	1/16W
R100	1-216-843-11	METAL CHIP	68K	5%	1/16W	R170	1-216-831-11	METAL CHIP	6.8K	5%	1/16W
						R171	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R105	1-216-821-11	METAL CHIP	1K	5%	1/16W	R172	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R106	1-216-829-11	METAL CHIP	4.7K	5%	1/16W						
R107	1-216-833-11	METAL CHIP	10K	5%	1/16W	R173	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R108	1-216-821-11	METAL CHIP	1K	5%	1/16W	R174	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R109	1-216-821-11	METAL CHIP	1K	5%	1/16W	R175	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
						R176	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R110	1-216-821-11	METAL CHIP	1K	5%	1/16W	R178	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R111	1-216-821-11	METAL CHIP	1K	5%	1/16W	R179	1-216-841-11	METAL CHIP	47K	5%	1/16W
R112	1-216-821-11	METAL CHIP	1K	5%	1/16W						
R113	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	R180	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R114	1-216-864-11	METAL CHIP	0			R184	1-216-821-11	METAL CHIP	1K	5%	1/16W
						R185	1-216-833-11	METAL CHIP	10K	5%	1/16W
R120	1-216-833-11	METAL CHIP	10K	5%	1/16W	R186	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R121	1-216-845-11	METAL CHIP	100K	5%	1/16W	R188	1-216-864-11	METAL CHIP	0		
R122	1-216-845-11	METAL CHIP	100K	5%	1/16W						
R123	1-216-839-11	METAL CHIP	33K	5%	1/16W	R190	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R124	1-216-845-11	METAL CHIP	100K	5%	1/16W	R193	1-216-833-11	METAL CHIP	10K	5%	1/16W
						R206	1-216-807-11	METAL CHIP	68	5%	1/16W
R125	1-216-838-11	METAL CHIP	27K	5%	1/16W	R207	1-216-821-11	METAL CHIP	1K	5%	1/16W
R127	1-216-833-11	METAL CHIP	10K	5%	1/16W	R208	1-216-821-11	METAL CHIP	1K	5%	1/16W
R129	1-216-864-11	METAL CHIP	0								
R130	1-216-842-11	METAL CHIP	56K	5%	1/16W	R210	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R131	1-216-833-11	METAL CHIP	10K	5%	1/16W	R216	1-216-832-11	METAL CHIP	8.2K	5%	1/16W
						R228	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R132	1-216-830-11	METAL CHIP	5.6K	5%	1/16W	R229	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R133	1-216-833-11	METAL CHIP	10K	5%	1/16W	R230	1-216-805-11	METAL CHIP	47	5%	1/16W
R134	1-216-829-11	METAL CHIP	4.7K	5%	1/16W						
R136	1-216-864-11	METAL CHIP	0			R231	1-216-805-11	METAL CHIP	47	5%	1/16W
R137	1-216-857-11	METAL CHIP	1M	5%	1/16W	R232	1-216-818-11	METAL CHIP	560	5%	1/16W
						R233	1-216-814-11	METAL CHIP	270	5%	1/16W
R144	1-216-841-11	METAL CHIP	47K	5%	1/16W	R234	1-216-813-11	METAL CHIP	220	5%	1/16W
R145	1-216-841-11	METAL CHIP	47K	5%	1/16W	R235	1-216-837-11	METAL CHIP	22K	5%	1/16W
R147	1-216-833-11	METAL CHIP	10K	5%	1/16W						
						R236	1-216-839-11	METAL CHIP	33K	5%	1/16W

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Ref. No.	Part No.	Description	Remark			Ref. No.	Part No.	Description	Remark		
R237	1-216-821-11	METAL CHIP	1K	5%	1/16W	R310	1-216-821-11	METAL CHIP	1K	5%	1/16W
R238	1-216-811-11	METAL CHIP	150	5%	1/16W	R311	1-216-821-11	METAL CHIP	1K	5%	1/16W
R239	1-216-833-11	METAL CHIP	10K	5%	1/16W	R312	1-216-821-11	METAL CHIP	1K	5%	1/16W
R240	1-216-833-11	METAL CHIP	10K	5%	1/16W	R313	1-216-821-11	METAL CHIP	1K	5%	1/16W
R243	1-216-841-11	METAL CHIP	47K	5%	1/16W	R314	1-216-821-11	METAL CHIP	1K	5%	1/16W
R244	1-216-833-11	METAL CHIP	10K	5%	1/16W	R315	1-216-821-11	METAL CHIP	1K	5%	1/16W
R245	1-216-833-11	METAL CHIP	10K	5%	1/16W	R316	1-216-814-11	METAL CHIP	270	5%	1/16W
R246	1-216-824-11	METAL CHIP	1.8K	5%	1/16W	R317	1-216-814-11	METAL CHIP	270	5%	1/16W
R247	1-216-816-11	METAL CHIP	390	5%	1/16W	R318	1-216-837-11	METAL CHIP	22K	5%	1/16W
R248	1-216-812-11	METAL CHIP	180	5%	1/16W	R319	1-216-837-11	METAL CHIP	22K	5%	1/16W
R249	1-216-836-11	METAL CHIP	18K	5%	1/16W	R320	1-216-817-11	METAL CHIP	470	5%	1/16W
R250	1-216-837-11	METAL CHIP	22K	5%	1/16W	R321	1-216-817-11	METAL CHIP	470	5%	1/16W
R251	1-216-817-11	METAL CHIP	470	5%	1/16W	R322	1-216-864-11	METAL CHIP	0		
R252	1-216-817-11	METAL CHIP	470	5%	1/16W	R323	1-216-817-11	METAL CHIP	470	5%	1/16W
R254	1-216-821-11	METAL CHIP	1K	5%	1/16W	R324	1-216-809-11	METAL CHIP	100	5%	1/16W
R255	1-216-817-11	METAL CHIP	470	5%	1/16W	R325	1-216-813-11	METAL CHIP	220	5%	1/16W
R256	1-216-837-11	METAL CHIP	22K	5%	1/16W	R326	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R257	1-216-837-11	METAL CHIP	22K	5%	1/16W	R327	1-216-837-11	METAL CHIP	22K	5%	1/16W
R258	1-216-822-11	METAL CHIP	1.2K	5%	1/16W	R328	1-216-838-11	METAL CHIP	27K	5%	1/16W
R259	1-216-817-11	METAL CHIP	470	5%	1/16W	R329	1-216-831-11	METAL CHIP	6.8K	5%	1/16W
R260	1-216-817-11	METAL CHIP	470	5%	1/16W	R330	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R261	1-216-817-11	METAL CHIP	470	5%	1/16W	R331	1-216-817-11	METAL CHIP	470	5%	1/16W
R262	1-216-815-11	METAL CHIP	330	5%	1/16W	R332	1-216-821-11	METAL CHIP	1K	5%	1/16W
R264	1-216-824-11	METAL CHIP	1.8K	5%	1/16W	R333	1-216-821-11	METAL CHIP	1K	5%	1/16W
R267	1-216-841-11	METAL CHIP	47K	5%	1/16W	R334	1-216-820-11	METAL CHIP	820	5%	1/16W
R268	1-216-841-11	METAL CHIP	47K	5%	1/16W	R335	1-216-817-11	METAL CHIP	470	5%	1/16W
R269	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	R336	1-216-821-11	METAL CHIP	1K	5%	1/16W
R270	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	R337	1-216-828-11	METAL CHIP	3.9K	5%	1/16W
R271	1-216-833-11	METAL CHIP	10K	5%	1/16W	R338	1-216-817-11	METAL CHIP	470	5%	1/16W
R282	1-216-864-11	METAL CHIP	0			R339	1-216-836-11	METAL CHIP	18K	5%	1/16W
R285	1-216-837-11	METAL CHIP	22K	5%	1/16W	R340	1-216-833-11	METAL CHIP	10K	5%	1/16W
R286	1-216-837-11	METAL CHIP	22K	5%	1/16W	R344	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R287	1-216-817-11	METAL CHIP	470	5%	1/16W	R346	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R288	1-216-817-11	METAL CHIP	470	5%	1/16W	R347	1-216-846-11	METAL CHIP	120K	5%	1/16W
R291	1-216-831-11	METAL CHIP	6.8K	5%	1/16W	R348	1-216-845-11	METAL CHIP	100K	5%	1/16W
R292	1-216-821-11	METAL CHIP	1K	5%	1/16W	R349	1-216-833-11	METAL CHIP	10K	5%	1/16W
R293	1-216-817-11	METAL CHIP	470	5%	1/16W	R351	1-216-826-11	METAL CHIP	2.7K	5%	1/16W
R294	1-216-817-11	METAL CHIP	470	5%	1/16W	R352	1-216-826-11	METAL CHIP	2.7K	5%	1/16W
R295	1-216-833-11	METAL CHIP	10K	5%	1/16W	R353	1-216-817-11	METAL CHIP	470	5%	1/16W
R300	1-216-817-11	METAL CHIP	470	5%	1/16W	R354	1-216-833-11	METAL CHIP	10K	5%	1/16W
R301	1-216-817-11	METAL CHIP	470	5%	1/16W	R355	1-216-855-11	METAL CHIP	680K	5%	1/16W
R302	1-216-821-11	METAL CHIP	1K	5%	1/16W	R356	1-216-857-11	METAL CHIP	1M	5%	1/16W
R303	1-216-821-11	METAL CHIP	1K	5%	1/16W	R358	1-216-847-11	METAL CHIP	150K	5%	1/16W
R304	1-216-818-11	METAL CHIP	560	5%	1/16W	R359	1-216-843-11	METAL CHIP	68K	5%	1/16W
R305	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	R360	1-216-826-11	METAL CHIP	2.7K	5%	1/16W
R306	1-216-817-11	METAL CHIP	470	5%	1/16W	R361	1-216-845-11	METAL CHIP	100K	5%	1/16W
R307	1-216-821-11	METAL CHIP	1K	5%	1/16W						
R308	1-216-821-11	METAL CHIP	1K	5%	1/16W						
R309	1-216-821-11	METAL CHIP	1K	5%	1/16W						

Ref. No.	Part No.	Description	Remark
R362	1-216-845-11	METAL CHIP 100K 5%	1/16W
R363	1-216-845-11	METAL CHIP 100K 5%	1/16W
R364	1-216-833-11	METAL CHIP 10K 5%	1/16W
R365	1-216-841-11	METAL CHIP 47K 5%	1/16W
R366	1-216-833-11	METAL CHIP 10K 5%	1/16W
R367	1-216-836-11	METAL CHIP 18K 5%	1/16W
R368	1-216-837-11	METAL CHIP 22K 5%	1/16W
R369	1-216-829-11	METAL CHIP 4.7K 5%	1/16W
R370	1-216-826-11	METAL CHIP 2.7K 5%	1/16W
R371	1-216-817-11	METAL CHIP 470 5%	1/16W
R372	1-216-809-11	METAL CHIP 100 5%	1/16W
R373	1-216-838-11	METAL CHIP 27K 5%	1/16W
R374	1-216-845-11	METAL CHIP 100K 5%	1/16W
R375	1-216-839-11	METAL CHIP 33K 5%	1/16W
R376	1-216-833-11	METAL CHIP 10K 5%	1/16W
R377	1-216-821-11	METAL CHIP 1K 5%	1/16W
R378	1-216-817-11	METAL CHIP 470 5%	1/16W
R379	1-216-809-11	METAL CHIP 100 5%	1/16W
R380	1-216-849-11	METAL CHIP 220K 5%	1/16W
R381	1-216-837-11	METAL CHIP 22K 5%	1/16W
R382	1-216-837-11	METAL CHIP 22K 5%	1/16W
R383	1-216-838-11	METAL CHIP 27K 5%	1/16W
R384	1-216-850-11	METAL CHIP 270K 5%	1/16W
R385	1-216-838-11	METAL CHIP 27K 5%	1/16W
R386	1-216-833-11	METAL CHIP 10K 5%	1/16W
R390	1-216-821-11	METAL CHIP 1K 5%	1/16W
R391	1-216-823-11	METAL CHIP 1.5K 5%	1/16W
R392	1-216-826-11	METAL CHIP 2.7K 5%	1/16W
R393	1-216-823-11	METAL CHIP 1.5K 5%	1/16W
R394	1-216-841-11	METAL CHIP 47K 5%	1/16W
R395	1-216-829-11	METAL CHIP 4.7K 5%	1/16W
R396	1-216-809-11	METAL CHIP 100 5%	1/16W
R400	1-216-817-11	METAL CHIP 470 5%	1/16W
R401	1-216-819-11	METAL CHIP 680 5%	1/16W
R501	1-216-839-11	METAL CHIP 33K 5%	1/16W
R502	1-216-835-11	METAL CHIP 15K 5%	1/16W
R503	1-216-818-11	METAL CHIP 560 5%	1/16W
R504	1-216-816-11	METAL CHIP 390 5%	1/16W
R506	1-216-817-11	METAL CHIP 470 5%	1/16W
R515	1-216-821-11	METAL CHIP 1K 5%	1/16W
R517	1-216-829-11	METAL CHIP 4.7K 5%	1/16W
R518	1-216-810-11	METAL CHIP 120 5%	1/16W
R521	1-216-835-11	METAL CHIP 15K 5%	1/16W
R522	1-216-818-11	METAL CHIP 560 5%	1/16W
R523	1-216-817-11	METAL CHIP 470 5%	1/16W
R524	1-216-817-11	METAL CHIP 470 5%	1/16W
R525	1-216-826-11	METAL CHIP 2.7K 5%	1/16W
R526	1-216-839-11	METAL CHIP 33K 5%	1/16W
R527	1-216-837-11	METAL CHIP 22K 5%	1/16W

Ref. No.	Part No.	Description	Remark
R528	1-216-821-11	METAL CHIP 1K 5%	1/16W
R529	1-216-839-11	METAL CHIP 33K 5%	1/16W
< VARIABLE RESISTOR >			
RV201	1-230-870-11	RES. ADJ. METAL 10K	
RV202	1-230-869-11	RES. ADJ. METAL 4.7K	
RV203	1-230-869-11	RES. ADJ. METAL 4.7K	
RV205	1-238-089-11	RES. ADJ. CERMET 4.7K	
RV206	1-238-088-11	RES. ADJ. CERMET 2.2K	
RV207	1-238-087-11	RES. ADJ. CERMET 1K	
< TERMINAL >			
TP001	* 1-535-622-11	PIN, TERMINAL	
< FLEXIBLE BOARD >			
W001	1-634-428-11	FP-257 FLEXIBLE BOARD	
W002	1-634-426-11	FP-255 FLEXIBLE BOARD	
W201	1-634-427-11	FP-256 FLEXIBLE BOARD	
< CRYSTAL >			
X001	1-577-467-21	VIBRATOR, CRYSTAL	
X150	1-567-699-21	VIBRATOR, CRYSTAL	

* A-7071-437-A SW-168 BOARD, COMPLETE			

(Ref. No 6,000 Series)			
< CONNECTOR >			
CN701	* 1-566-764-11	PIN, CONNECTOR (PC BOARD) 9P	
CN702	* 1-566-761-11	PIN, CONNECTOR (PC BOARD) 6P	
CN703	1-575-846-11	CONNECTOR, FPC (NON ZIF) 6P	
< DIODE >			
D701	8-719-977-34	DIODE DTZ12	
D702	8-719-977-34	DIODE DTZ12	
D705	8-719-977-34	DIODE DTZ12	
< JACK >			
J701	1-507-929-11	JACK (HEADPHONE)	
J702	1-565-276-21	JACK, ULTRA SMALL 1P (REMOTE)	
< COIL >			
L701	1-410-369-11	INDUCTOR CHIP 1uH	
L702	1-410-369-11	INDUCTOR CHIP 1uH	
L703	1-410-369-11	INDUCTOR CHIP 1uH	
L704	1-410-369-11	INDUCTOR CHIP 1uH	
L705	1-410-369-11	INDUCTOR CHIP 1uH	

SW-168**VA-64**

Ref. No.	Part No.	Description	Remark
L706	1-410-369-11	INDUCTOR CHIP 1uH	
< SWITCH >			
S701	1-570-870-11	SWITCH, SLIDE (STANDBY)	
S702	1-571-838-11	SWITCH, TACTIL (REC START/STOP)	

* A-7062-795-A VA-64 BOARD, COMPLETE			

(Ref. No 3,000 Series)			
* 1-535-622-11 PIN, TERMINAL			
3-744-791-01 CASE, SHIELD, VA			
7-627-553-48 PRECISION SCREW +P 2X4 TYPE 3			
< CAPACITOR >			
C415	1-128-003-11	ELECT CHIP 22uF 20% 4V	
C416	1-128-004-11	ELECT CHIP 10uF 20% 16V	
C417	1-128-004-11	ELECT CHIP 10uF 20% 16V	
C418	1-128-004-11	ELECT CHIP 10uF 20% 16V	
C424	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C425	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C426	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C427	1-128-004-11	ELECT CHIP 10uF 20% 16V	
C428	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C430	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C435	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
C436	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C437	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C439	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C448	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C449	1-162-952-11	CERAMIC CHIP 82PF 5% 50V	
C450	1-162-947-11	CERAMIC CHIP 33PF 5% 50V	
C451	1-164-633-11	CERAMIC CHIP 0.1uF 10% 25V	
C453	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C461	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C462	1-162-949-11	CERAMIC CHIP 47PF 5% 50V	
C464	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C465	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C466	1-162-995-11	CERAMIC CHIP 0.022uF 50V	
C467	1-162-947-11	CERAMIC CHIP 33PF 5% 50V	
C468	1-162-954-11	CERAMIC CHIP 120PF 5% 50V	
C470	1-162-959-11	CERAMIC CHIP 330PF 5% 50V	
C472	1-162-949-11	CERAMIC CHIP 47PF 5% 50V	
C650	1-164-005-11	CERAMIC CHIP 0.47uF 25V	
C651	1-128-004-11	ELECT CHIP 10uF 20% 16V	
C652	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C653	1-162-974-11	CERAMIC CHIP 0.01uF 50V	

Ref. No.	Part No.	Description	Remark
C654	1-124-779-00	ELECT CHIP 10uF 20% 16V	
C655	1-162-949-11	CERAMIC CHIP 47PF 5% 50V	
C656	1-135-145-11	TANTALUM CHIP 0.47uF 10% 25V	
C657	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C658	1-128-004-11	ELECT CHIP 10uF 20% 16V	
C659	1-135-180-21	TANTALUM CHIP 3.3uF 20% 6.3V	
C660	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C661	1-162-958-11	CERAMIC CHIP 270PF 5% 50V	
C662	1-164-222-11	CERAMIC CHIP 0.22uF 25V	
C663	1-164-005-11	CERAMIC CHIP 0.47uF 25V	
C664	1-128-004-11	ELECT CHIP 10uF 20% 16V	
C665	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C666	1-163-023-00	CERAMIC CHIP 0.015uF 5% 50V	
C667	1-135-157-21	TANTALUM CHIP 10uF 20% 6.3V	
C668	1-163-035-00	CERAMIC CHIP 0.047uF 50V	
C669	1-162-963-11	CERAMIC CHIP 680PF 10% 50V	
C670	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C671	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C672	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C673	1-128-004-11	ELECT CHIP 10uF 20% 16V	
C674	1-126-207-11	ELECT CHIP 33uF 20% 4V	
C675	1-162-950-11	CERAMIC CHIP 180PF 5% 50V	
C677	1-164-145-11	CERAMIC CHIP 390PF 5% 50V	
C678	1-126-425-11	ELECT 10uF 20% 10V	
C679	1-162-946-11	CERAMIC CHIP 27PF 5% 50V	
C681	1-162-956-11	CERAMIC CHIP 180PF 5% 50V	
C683	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C684	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C685	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C686	1-163-121-00	CERAMIC CHIP 150PF 5% 50V	
C687	1-163-121-00	CERAMIC CHIP 150PF 5% 50V	
C688	1-163-131-00	CERAMIC CHIP 390PF 5% 50V	
C689	1-163-129-00	CERAMIC CHIP 330PF 5% 50V	
C690	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C691	1-126-154-11	ELECT 47uF 20% 6.3V	
C692	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C694	1-163-809-11	CERAMIC CHIP 0.047uF 10% 25V	
C695	1-162-969-11	CERAMIC CHIP 0.0068uF 10% 25V	
C696	1-135-091-00	TANTALUM CHIP 1uF 20% 16V	
C697	1-135-091-00	TANTALUM CHIP 1uF 20% 16V	
C698	1-135-176-21	TANTALUM CHIP 0.68uF 10% 20V	
C699	1-163-033-00	CERAMIC CHIP 0.022uF 50V	
C700	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C701	1-128-004-11	ELECT CHIP 10uF 20% 16V	
C702	1-162-941-11	CERAMIC CHIP 10PF 0.5PF 50V	
C703	1-162-945-11	CERAMIC CHIP 22PF 5% 50V	
C705	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C706	1-162-974-11	CERAMIC CHIP 0.01uF 50V	

Ref. No.	Part No.	Description	Remark			Ref. No.	Part No.	Description	Remark		
C707	1-162-944-11	CERAMIC CHIP	18PF	5%	50V	C766	1-126-245-11	ELECT	330uF	20%	6.3V
C708	1-162-957-11	CERAMIC CHIP	220PF	5%	50V	C767	1-128-006-11	ELECT CHIP	4.7uF	20%	25V
C709	1-162-950-11	CERAMIC CHIP	56PF	5%	50V	C768	1-126-607-11	ELECT CHIP	47uF	20%	4V
C710	1-162-951-11	CERAMIC CHIP	68PF	5%	50V	C769	1-128-004-11	ELECT CHIP	10uF	20%	16V
C712	1-162-974-11	CERAMIC CHIP	0.01uF		50V	C771	1-128-003-11	ELECT CHIP	22uF	20%	4V
C713	1-162-953-11	CERAMIC CHIP	100PF	5%	50V	C772	1-162-945-11	CERAMIC CHIP	22PF	5%	50V
C714	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V	C774	1-162-944-11	CERAMIC CHIP	18PF	5%	50V
C715	1-163-121-00	CERAMIC CHIP	150PF	5%	50V	C775	1-162-954-11	CERAMIC CHIP	120PF	5%	50V
C716	1-162-949-11	CERAMIC CHIP	47PF	5%	50V	C776	1-126-155-11	ELECT	100uF	20%	6.3V
C717	1-162-952-11	CERAMIC CHIP	82PF	5%	50V	C777	1-162-955-11	CERAMIC CHIP	150PF	5%	50V
C718	1-136-015-00	CERAMIC CHIP	0.0033uF		50V	C778	1-162-950-11	CERAMIC CHIP	56PF	5%	50V
C719	1-162-943-11	CERAMIC CHIP	15PF	5%	50V	C779	1-162-958-11	CERAMIC CHIP	270PF	5%	50V
C720	1-126-199-11	ELECT CHIP	6.8uF	20%	35V	C780	1-162-950-11	CERAMIC CHIP	56PF	5%	50V
C721	1-162-974-11	CERAMIC CHIP	0.01uF		50V	C781	1-162-944-11	CERAMIC CHIP	18PF	5%	50V
C722	1-163-118-00	CERAMIC CHIP	110PF	5%	50V	C782	1-162-943-11	CERAMIC CHIP	15PF	5%	50V
C723	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	C783	1-128-003-11	ELECT CHIP	22uF	20%	4V
C724	1-126-601-11	ELECT	2.2uF	20%	50V	C784	1-126-425-11	ELECT	10uF	20%	10V
C725	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	C785	1-126-607-11	ELECT CHIP	47uF	20%	4V
C726	1-164-145-11	CERAMIC CHIP	390PF	5%	50V	C786	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C727	1-162-974-11	CERAMIC CHIP	0.01uF		50V	C787	1-128-004-11	ELECT CHIP	10uF	20%	16V
C728	1-162-974-11	CERAMIC CHIP	0.01uF		50V	C788	1-128-004-11	ELECT CHIP	10uF	20%	16V
C729	1-126-603-11	ELECT CHIP	4.7uF	20%	35V	C789	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C730	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	C790	1-162-938-11	CERAMIC CHIP	7PF	0.5PF	50V
C731	1-128-013-11	ELECT CHIP	1uF	20%	50V	C794	1-164-634-11	CERAMIC CHIP	1uF		16V
C733	1-162-974-11	CERAMIC CHIP	0.01uF		50V	C796	1-128-008-11	ELECT CHIP	3.3uF	20%	35V
C734	1-162-974-11	CERAMIC CHIP	0.01uF		50V	C797	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C735	1-162-936-11	CERAMIC CHIP	5PF	0.25PF	50V	C798	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C737	1-162-944-11	CERAMIC CHIP	18PF	5%	50V	C799	1-128-008-11	ELECT CHIP	3.3uF	20%	35V
C739	1-162-936-11	CERAMIC CHIP	5PF	0.25PF	50V	C800	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C741	1-162-938-11	CERAMIC CHIP	7PF	0.5PF	50V	C801	1-163-833-00	CERAMIC CHIP	0.068uF		25V
C742	1-162-941-11	CERAMIC CHIP	10PF	0.5PF	50V	C802	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C743	1-163-035-00	CERAMIC CHIP	0.047uF		50V	C803	1-128-008-11	ELECT CHIP	3.3uF	20%	35V
C745	1-162-942-11	CERAMIC CHIP	12PF	5%	50V	C804	1-128-004-11	ELECT CHIP	10uF	20%	16V
C747	1-163-035-00	CERAMIC CHIP	0.047uF		50V	C805	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C748	1-163-035-00	CERAMIC CHIP	0.047uF		50V	C806	1-162-949-11	CERAMIC CHIP	47PF	5%	50V
C749	1-163-035-00	CERAMIC CHIP	0.047uF		50V	C808	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C750	1-163-035-00	CERAMIC CHIP	0.047uF		50V	C809	1-164-634-11	CERAMIC CHIP	1uF		16V
C751	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	C811	1-128-008-11	ELECT CHIP	3.3uF	20%	35V
C752	1-126-163-11	ELECT	4.7uF	20%	50V	C812	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C753	1-163-035-00	CERAMIC CHIP	0.047uF		50V	C813	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C754	1-162-941-11	CERAMIC CHIP	10PF	0.5PF	50V	C814	1-128-008-11	ELECT CHIP	3.3uF	20%	35V
C755	1-162-945-11	CERAMIC CHIP	22PF	5%	50V	C815	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C756	1-163-035-00	CERAMIC CHIP	0.047uF		50V	C816	1-128-004-11	ELECT CHIP	10uF	20%	16V
C757	1-162-932-11	CERAMIC CHIP	2PF	0.25PF	50V	C817	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C758	1-162-939-11	CERAMIC CHIP	8PF	0.5PF	50V	C818	1-128-008-11	ELECT CHIP	3.3uF	20%	35V
C760	1-163-035-00	CERAMIC CHIP	0.047uF		50V	C819	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C763	1-163-038-00	CERAMIC CHIP	0.1uF		25V	C821	1-162-947-11	CERAMIC CHIP	33PF	5%	50V
C764	1-126-205-11	ELECT CHIP	47uF	20%	6.3V	C824	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C765	1-128-004-11	ELECT CHIP	10uF	20%	16V	C826	1-164-005-11	CERAMIC CHIP	0.47uF		25V

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Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
C827	1-128-004-11	ELECT CHIP	10uF 20% 16V	< DIODE >			
C828	1-128-004-11	ELECT CHIP	10uF 20% 16V	D415	8-719-421-30	DIODE MA141A	
C829	1-128-004-11	ELECT CHIP	10uF 20% 16V	D416	8-719-800-76	DIODE 1SS226	
C831	1-126-425-11	ELECT	10uF 20% 10V	D417	8-719-941-86	DIODE DAN202U	
C832	1-124-778-00	ELECT CHIP	22uF 20% 6.3V	D419	8-719-941-09	DIODE DAP202U	
C833	1-128-004-11	ELECT CHIP	10uF 20% 16V	D420	8-719-941-86	DIODE DAN202U	
C836	1-128-004-11	ELECT CHIP	10uF 20% 16V	D422	8-719-941-86	DIODE DAN202U	
C837	1-128-006-11	ELECT CHIP	4.7uF 20% 25V	D423	8-719-941-86	DIODE DAN202U	
C838	1-126-245-11	ELECT	330uF 20% 6.3V	D427	8-719-941-86	DIODE DAN202U	
C839	1-126-607-11	ELECT CHIP	47uF 20% 4V	D428	8-719-941-86	DIODE DAN202U	
C840	1-128-004-11	ELECT CHIP	10uF 20% 16V	D432	8-719-941-86	DIODE DAN202U	
C841	1-128-004-11	ELECT CHIP	10uF 20% 16V	D433	8-719-941-86	DIODE DAN202U	
C842	1-128-004-11	ELECT CHIP	10uF 20% 16V	D434	8-719-941-09	DIODE DAP202U	
C843	1-126-607-11	ELECT CHIP	47uF 20% 4V	D435	8-719-941-86	DIODE DAN202U	
C844	1-162-949-11	CERAMIC CHIP	47PF 5% 50V	D436	8-719-941-86	DIODE DAN202U	
C845	1-162-952-11	CERAMIC CHIP	82PF 5% 50V	D437	8-719-941-86	DIODE DAN202U	
C848	1-128-004-11	ELECT CHIP	10uF 20% 16V	D651	8-719-941-86	DIODE DAN202U	
C851	1-162-957-11	CERAMIC CHIP	220PF 5% 50V	D652	8-719-977-22	DIODE DTZ9.1	
C856	1-162-945-11	CERAMIC CHIP	22PF 5% 50V	D653	8-719-941-86	DIODE DAN202U	
C857	1-162-974-11	CERAMIC CHIP	0.01uF 50V	D654	8-719-977-22	DIODE DTZ9.1	
C858	1-126-245-11	ELECT	330uF 20% 6.3V	D655	8-719-800-76	DIODE 1SS226	
C859	1-128-004-11	ELECT CHIP	10uF 20% 16V	D656	8-719-941-86	DIODE DAN202U	
C860	1-162-974-11	CERAMIC CHIP	0.01uF 50V	D657	8-719-800-76	DIODE 1SS226	
C861	1-163-033-00	CERAMIC CHIP	0.022uF 50V	D661	8-719-941-86	DIODE DAN202U	
C862	1-162-974-11	CERAMIC CHIP	0.01uF 50V	D662	8-719-951-22	DIODE IMN10	
C863	1-162-974-11	CERAMIC CHIP	0.01uF 50V	D663	8-719-941-86	DIODE DAN202U	
C864	1-162-974-11	CERAMIC CHIP	0.01uF 50V	D667	8-719-941-89	DIODE DA106U	
C865	1-162-974-11	CERAMIC CHIP	0.01uF 50V	D669	8-719-977-22	DIODE DTZ9.1	
C869	1-162-974-11	CERAMIC CHIP	0.01uF 50V	D670	8-719-977-22	DIODE DTZ9.1	
C870	1-162-974-11	CERAMIC CHIP	0.01uF 50V	D671	8-719-977-22	DIODE DTZ9.1	
C871	1-128-004-11	ELECT CHIP	10uF 20% 16V	D672	8-719-977-22	DIODE DTZ9.1	
C872	1-162-974-11	CERAMIC CHIP	0.01uF 50V	D673	8-719-800-76	DIODE 1SS226	
C873	1-162-974-11	CERAMIC CHIP	0.01uF 50V	D674	8-719-977-22	DIODE DTZ9.1	
C874	1-162-974-11	CERAMIC CHIP	0.01uF 50V	D675	8-719-977-22	DIODE DTZ9.1	
C875	1-128-003-11	ELECT CHIP	22uF 20% 4V	D676	8-719-977-22	DIODE DTZ9.1	
C876	1-128-004-11	ELECT CHIP	10uF 20% 16V	D677	8-719-977-22	DIODE DTZ9.1	
C878	1-162-974-11	CERAMIC CHIP	0.01uF 50V	D678	8-719-977-22	DIODE DTZ9.1	
C880	1-128-003-11	ELECT CHIP	22uF 20% 4V	D679	8-719-977-22	DIODE DTZ9.1	
C881	1-162-974-11	CERAMIC CHIP	0.01uF 50V	D680	8-719-977-22	DIODE DTZ9.1	
C890	1-162-945-11	CERAMIC CHIP	22PF 5% 50V	D681	8-719-977-22	DIODE DTZ9.1	
		< FILTER >		D690	8-719-941-86	DIODE DAN202U	
CF650	1-577-162-11	FILTER, CERAMIC		< FILTER >			
		< CONNECTOR >		FL650	1-236-186-11	FILTER, BAND PASS	
CN551	1-568-801-11	CONNECTOR, FPC (ZIF) 24P		FL651	1-236-849-21	FILTER, BAND PASS	
CN650	1-580-057-11	PIN, CONNECTOR 4P		FL652	1-236-850-21	FILTER, BAND PASS	
				FL653	1-415-818-11	DELAY LINE, LC (Y)	
				FL654	1-415-764-21	DELAY LINE, LC	

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
FL655	1-236-848-21	FILTER, LOW PASS		L673	1-410-385-11	INDUCTOR, CHIP 22uH	
FL656	1-239-010-11	FILTER, LOW PASS (CCD, PAL, Y)		L674	1-410-382-31	INDUCTOR, CHIP 12uH	
FL657	1-236-775-11	FILTER, LOW PASS (DEM)		L675	1-410-383-31	INDUCTOR, CHIP 15uH	
FL658	1-236-774-11	FILTER, LOW PASS (Y)		L676	1-410-380-31	INDUCTOR, CHIP 8.2uH	
< IC >				L677	1-410-379-21	INDUCTOR, CHIP 6.8uH	
IC416	8-759-710-09	IC NJM2233AM		L678	1-410-388-21	INDUCTOR, CHIP 39uH	
IC650	8-752-036-19	IC CXA1207AR		L679	1-410-386-11	INDUCTOR, CHIP 27uH	
IC651	8-752-036-20	IC CXA1208R		L681	1-412-058-11	INDUCTOR, CHIP 10uH	
IC652	8-759-605-61	IC CXA1203N		L682	1-410-389-31	INDUCTOR, CHIP 47uH	
IC653	8-759-925-60	IC BA401		L683	1-412-058-11	INDUCTOR, CHIP 10uH	
IC654	8-752-009-51	IC CX20095A		L684	1-410-389-31	INDUCTOR, CHIP 47uH	
IC656	8-759-320-76	IC HA118070FP		L685	1-410-389-31	INDUCTOR, CHIP 47uH	
IC657	8-752-333-24	IC CXL1506M		L688	1-410-380-31	INDUCTOR, CHIP 8.2uH	
IC658	8-752-333-24	IC CXL1506M		L689	1-410-389-31	INDUCTOR, CHIP 47uH	
IC659	8-759-710-29	IC NJM2235M		L691	1-410-389-31	INDUCTOR, CHIP 47uH	
IC660	8-759-710-07	IC NJM2234M		L692	1-410-655-31	INDUCTOR, CHIP 120uH	
IC661	8-759-710-07	IC NJM2234M		L699	1-410-388-11	INDUCTOR, CHIP 39uH	
IC662	8-759-009-22	IC MC14094BF		< TRANSISTOR >			
IC663	8-759-710-29	IC NJM2235M		Q411	8-729-905-23	TRANSISTOR 2SA1576-R	
< JACK >				Q412	8-729-905-18	TRANSISTOR DTC144EU	
J650	1-566-850-31	CONNECTOR, (S) TERMINAL 4P (S VIDEO)		Q415	8-729-905-23	TRANSISTOR 2SA1576-R	
J651	1-569-556-11	JACK (VIDEO/AUDIO/RFU DC OUT)		Q416	8-729-905-35	TRANSISTOR 2SC4081-R	
< COIL >				Q417	8-729-905-12	TRANSISTOR DTA144EU	
L443	1-412-058-11	INDUCTOR, CHIP 10uH		Q418	8-729-905-35	TRANSISTOR 2SC4081-R	
L444	1-410-379-21	INDUCTOR, CHIP 6.8uH		Q421	8-729-905-23	TRANSISTOR 2SA1576-R	
L445	1-410-385-11	INDUCTOR, CHIP 22uH		Q422	8-729-905-18	TRANSISTOR DTC144EU	
L446	1-410-381-11	INDUCTOR, CHIP 10uH		Q423	8-729-905-35	TRANSISTOR 2SC4081-R	
L447	1-410-379-21	INDUCTOR, CHIP 6.8uH		Q426	8-729-905-35	TRANSISTOR 2SC4081-R	
L448	1-410-389-31	INDUCTOR, CHIP 47uH		Q427	8-729-905-35	TRANSISTOR 2SC4081-R	
L650	1-410-380-31	INDUCTOR, CHIP 8.2uH		Q428	8-729-905-XX	TRANSISTOR DTC114TU	
L651	1-410-378-11	INDUCTOR, CHIP 5.6uH		Q429	8-729-905-35	TRANSISTOR 2SC4081-R	
L652	1-410-385-11	INDUCTOR, CHIP 22uH		Q430	8-729-905-18	TRANSISTOR DTC144EU	
L653	1-410-385-11	INDUCTOR, CHIP 22uH		Q431	8-729-905-23	TRANSISTOR 2SA1576-R	
L657	1-410-386-11	INDUCTOR, CHIP 27uH		Q432	8-729-905-23	TRANSISTOR 2SA1576-R	
L658	1-410-393-11	INDUCTOR, CHIP 100uH		Q433	8-729-905-35	TRANSISTOR 2SC4081-R	
L659	1-410-655-31	INDUCTOR, CHIP 120uH		Q434	8-729-905-23	TRANSISTOR 2SA1576-R	
L660	1-410-393-11	INDUCTOR, CHIP 100uH		Q439	8-729-905-12	TRANSISTOR DTA144EU	
L661	1-410-656-11	INDUCTOR, CHIP 150uH		Q440	8-729-905-35	TRANSISTOR 2SC4081-R	
L662	1-410-393-11	INDUCTOR, CHIP 100uH		Q442	8-729-905-18	TRANSISTOR DTC144EU	
L663	1-410-381-11	INDUCTOR, CHIP 10uH		Q443	8-729-905-18	TRANSISTOR DTC144EU	
L666	1-410-384-31	INDUCTOR, CHIP 18uH		Q444	8-729-905-35	TRANSISTOR 2SC4081-R	
L667	1-408-797-11	INDUCTOR, CHIP 470uH		Q446	8-729-905-35	TRANSISTOR 2SC4081-R	
L668	1-408-797-11	INDUCTOR, CHIP 470uH		Q447	8-729-921-58	TRANSISTOR DTA144TU	
L669	1-410-384-31	INDUCTOR, CHIP 18uH		Q448	8-729-905-18	TRANSISTOR DTC144EU	
L670	1-410-389-31	INDUCTOR, CHIP 47uH		Q452	8-729-905-18	TRANSISTOR DTC144EU	
L671	1-410-389-31	INDUCTOR, CHIP 47uH		Q456	8-729-905-18	TRANSISTOR DTC144EU	
				Q491	8-729-905-96	TRANSISTOR DTA114TU	
				Q493	8-729-905-12	TRANSISTOR DTA144EU	

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Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
Q494	8-729-905-35	TRANSISTOR	2SC4081-R	Q696	8-729-905-18	TRANSISTOR	DTC144EU
Q497	8-729-905-18	TRANSISTOR	DTC144EU	Q698	8-729-905-35	TRANSISTOR	2SC4081-R
Q498	8-729-905-18	TRANSISTOR	DTC144EU	Q699	8-729-905-12	TRANSISTOR	DTA144EU
Q643	8-729-905-23	TRANSISTOR	2SA1576-R	Q700	8-729-202-38	TRANSISTOR	2SC3326N
Q645	8-729-905-18	TRANSISTOR	DTC144EU	Q701	8-729-905-35	TRANSISTOR	2SC4081-R
Q647	8-729-905-18	TRANSISTOR	DTC144EU	Q702	8-729-905-35	TRANSISTOR	2SC4081-R
Q648	8-729-905-12	TRANSISTOR	DTA144EU	Q703	8-729-905-23	TRANSISTOR	2SA1576-R
Q649	8-729-905-18	TRANSISTOR	DTC144EU	Q705	8-729-905-12	TRANSISTOR	DTA144EU
Q651	8-729-905-23	TRANSISTOR	2SA1576-R	Q707	8-729-904-20	TRANSISTOR	FMA2
Q655	8-729-905-12	TRANSISTOR	DTA144EU	Q708	8-729-904-07	TRANSISTOR	FMG2
Q656	8-729-905-23	TRANSISTOR	2SA1576-R	Q711	8-729-905-12	TRANSISTOR	DTA144EU
Q657	8-729-905-35	TRANSISTOR	2SC4081-R	Q712	8-729-905-12	TRANSISTOR	DTA144EU
Q658	8-729-924-36	TRANSISTOR	DTC143EU	Q717	8-729-905-23	TRANSISTOR	2SA1576-R
Q659	8-729-905-35	TRANSISTOR	2SC4081-R	Q719	8-729-905-18	TRANSISTOR	DTC144EU
Q660	8-729-905-35	TRANSISTOR	2SC4081-R	Q721	8-729-202-38	TRANSISTOR	2SC3326N
Q661	8-729-905-35	TRANSISTOR	2SC4081-R	Q722	8-729-905-35	TRANSISTOR	2SC4081-R
Q662	8-729-905-35	TRANSISTOR	2SC4081-R	Q723	8-729-904-07	TRANSISTOR	FMG2
Q663	8-729-905-23	TRANSISTOR	2SA1576-R	Q724	8-729-905-23	TRANSISTOR	2SA1576-R
Q664	8-729-905-18	TRANSISTOR	DTC144EU	Q725	8-729-905-23	TRANSISTOR	2SA1576-R
Q665	8-729-905-35	TRANSISTOR	2SC4081-R	Q727	8-729-905-45	TRANSISTOR	DTA143EU
Q666	8-729-905-35	TRANSISTOR	2SC4081-R	Q728	8-729-905-23	TRANSISTOR	2SA1576-R
Q667	8-729-905-18	TRANSISTOR	DTC144EU	Q729	8-729-905-35	TRANSISTOR	2SC4081-R
Q668	8-729-905-18	TRANSISTOR	DTC144EU	Q730	8-729-905-23	TRANSISTOR	2SA1576-R
Q669	8-729-905-18	TRANSISTOR	DTC144EU	Q731	8-729-905-12	TRANSISTOR	DTA144EU
Q670	8-729-202-38	TRANSISTOR	2SC3326N	Q732	8-729-905-35	TRANSISTOR	2SC4081-R
Q671	8-729-905-18	TRANSISTOR	DTC144EU	Q733	8-729-905-18	TRANSISTOR	DTC144EU
Q672	8-729-905-18	TRANSISTOR	DTC144EU	Q734	8-729-905-18	TRANSISTOR	DTC144EU
Q673	8-729-905-12	TRANSISTOR	DTA144EU	Q735	8-729-905-35	TRANSISTOR	2SC4081-R
Q674	8-729-141-48	TRANSISTOR	2SB624-BV345	Q736	8-729-905-45	TRANSISTOR	DTA143EU
Q675	8-729-905-18	TRANSISTOR	DTC144EU	Q742	8-729-905-23	TRANSISTOR	2SA1576-R
Q676	8-729-905-12	TRANSISTOR	DTA144EU	Q743	8-729-905-35	TRANSISTOR	2SC4081-R
Q677	8-729-905-12	TRANSISTOR	DTA144EU	Q744	8-729-905-35	TRANSISTOR	2SC4081-R
Q678	8-729-202-38	TRANSISTOR	2SC3326N	Q745	8-729-905-18	TRANSISTOR	DTC144EU
Q679	8-729-202-38	TRANSISTOR	2SC3326N	Q746	8-729-141-48	TRANSISTOR	2SB624-BV345
Q680	8-729-905-35	TRANSISTOR	2SC4081-R	Q747	8-729-905-23	TRANSISTOR	2SA1576-R
Q681	8-729-905-35	TRANSISTOR	2SC4081-R	Q748	8-729-905-35	TRANSISTOR	2SC4081-R
Q682	8-729-905-35	TRANSISTOR	2SC4081-R	Q751	8-729-905-35	TRANSISTOR	2SC4081-R
Q683	8-729-905-23	TRANSISTOR	2SA1576-R	Q752	8-729-905-23	TRANSISTOR	2SA1576-R
Q684	8-729-905-18	TRANSISTOR	DTC144EU	Q753	8-729-904-20	TRANSISTOR	FMA2
Q685	8-729-905-12	TRANSISTOR	DTA144EU	Q756	8-729-905-23	TRANSISTOR	2SA1576-R
Q686	8-729-905-35	TRANSISTOR	2SC4081-R	Q757	8-729-905-35	TRANSISTOR	2SC4081-R
Q687	8-729-905-35	TRANSISTOR	2SC4081-R	Q758	8-729-905-35	TRANSISTOR	2SC4081-R
Q688	8-729-905-35	TRANSISTOR	2SC4081-R	Q760	8-729-905-12	TRANSISTOR	DTA144EU
Q689	8-729-905-35	TRANSISTOR	2SC4081-R	Q761	8-729-905-18	TRANSISTOR	DTC144EU
Q690	8-729-141-48	TRANSISTOR	2SB624-BV345	Q762	8-729-905-18	TRANSISTOR	DTC144EU
Q691	8-729-905-18	TRANSISTOR	DTC144EU	Q763	8-729-905-18	TRANSISTOR	DTC144EU
Q692	8-729-905-18	TRANSISTOR	DTC144EU	Q764	8-729-905-35	TRANSISTOR	2SC4081-R
Q693	8-729-202-38	TRANSISTOR	2SC3326N	Q765	8-729-905-35	TRANSISTOR	2SC4081-R
Q694	8-729-202-38	TRANSISTOR	2SC3326N				

Ref. No.	Part No.	Description	Remark				Ref. No.	Part No.	Description	Remark			
Q766	8-729-905-23	TRANSISTOR	2SA1576-R				R460	1-216-864-11	METAL CHIP	0			
Q770	8-729-101-07	TRANSISTOR	2SB798-DL				R462	1-216-831-11	METAL CHIP	6.8K	5%	1/16W	
Q772	8-729-905-12	TRANSISTOR	DTA144EU				R463	1-216-821-11	METAL CHIP	1K	5%	1/16W	
Q773	8-729-905-12	TRANSISTOR	DTA144EU				R464	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
Q774	8-729-905-35	TRANSISTOR	2SC4081-R				R465	1-216-839-11	METAL CHIP	33K	5%	1/16W	
Q775	8-729-905-18	TRANSISTOR	DTC144EU				R466	1-216-837-11	METAL CHIP	22K	5%	1/16W	
Q776	8-729-921-58	TRANSISTOR	DTA144TU				R467	1-216-821-11	METAL CHIP	1K	5%	1/16W	
Q777	8-729-905-23	TRANSISTOR	2SA1576-R				R468	1-216-813-11	METAL CHIP	220	5%	1/16W	
Q784	8-729-905-35	TRANSISTOR	2SC4081-R				R469	1-216-833-11	METAL CHIP	10K	5%	1/16W	
Q786	8-729-905-18	TRANSISTOR	DTC144EU				R471	1-216-864-11	METAL CHIP	0			
Q990	8-729-905-18	TRANSISTOR	DTC144EU				R472	1-216-833-11	METAL CHIP	10K	5%	1/16W	
Q991	8-729-905-18	TRANSISTOR	DTC144EU				R473	1-216-837-11	METAL CHIP	22K	5%	1/16W	
< RESISTOR >							R474	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R411	1-216-830-11	METAL CHIP	5.6K	5%	1/16W		R475	1-216-864-11	METAL CHIP	0			
R412	1-216-821-11	METAL CHIP	1K	5%	1/16W		R476	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R413	1-216-812-11	METAL CHIP	180	5%	1/16W		R484	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R414	1-216-833-11	METAL CHIP	10K	5%	1/16W		R486	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R415	1-216-825-11	METAL CHIP	2.2K	5%	1/16W		R488	1-216-850-11	METAL CHIP	270K	5%	1/16W	
R416	1-216-813-11	METAL CHIP	220	5%	1/16W		R489	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R417	1-216-816-11	METAL CHIP	390	5%	1/16W		R491	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	
R418	1-216-833-11	METAL CHIP	10K	5%	1/16W		R496	1-216-138-00	METAL CHIP	3.3	5%	1/8W	
R420	1-216-821-11	METAL CHIP	1K	5%	1/16W		R498	1-216-815-11	METAL CHIP	330	5%	1/16W	
R421	1-216-823-11	METAL CHIP	1.5K	5%	1/16W		R630	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R422	1-216-821-11	METAL CHIP	1K	5%	1/16W		R631	1-216-296-00	METAL CHIP	0	5%	1/8W	
R423	1-216-821-11	METAL CHIP	1K	5%	1/16W		R632	1-216-816-11	METAL CHIP	390	5%	1/16W	
R424	1-216-829-11	METAL CHIP	4.7K	5%	1/16W		R634	1-216-864-11	METAL CHIP	0			
R425	1-216-847-11	METAL CHIP	150K	5%	1/16W		R636	1-216-840-11	METAL CHIP	39K	5%	1/16W	
R426	1-216-833-11	METAL CHIP	10K	5%	1/16W		R638	1-216-801-11	METAL CHIP	22	5%	1/16W	
R427	1-216-847-11	METAL CHIP	150K	5%	1/16W		R642	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R428	1-216-845-11	METAL CHIP	100K	5%	1/16W		R643	1-216-812-11	METAL CHIP	180	5%	1/16W	
R429	1-216-841-11	METAL CHIP	47K	5%	1/16W		R644	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R430	1-216-845-11	METAL CHIP	100K	5%	1/16W		R645	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R431	1-216-821-11	METAL CHIP	1K	5%	1/16W		R646	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R432	1-216-835-11	METAL CHIP	15K	5%	1/16W		R647	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R439	1-216-833-11	METAL CHIP	10K	5%	1/16W		R648	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R440	1-216-833-11	METAL CHIP	10K	5%	1/16W		R649	1-216-818-11	METAL CHIP	560	5%	1/16W	
R445	1-216-864-11	METAL CHIP	0				R650	1-216-838-11	METAL CHIP	27K	5%	1/16W	
R446	1-216-864-11	METAL CHIP	0				R651	1-216-814-11	METAL CHIP	270	5%	1/16W	
R448	1-216-825-11	METAL CHIP	2.2K	5%	1/16W		R652	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R449	1-216-833-11	METAL CHIP	10K	5%	1/16W		R654	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R451	1-216-825-11	METAL CHIP	2.2K	5%	1/16W		R655	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R452	1-216-833-11	METAL CHIP	10K	5%	1/16W		R657	1-216-835-11	METAL CHIP	15K	5%	1/16W	
R453	1-216-825-11	METAL CHIP	2.2K	5%	1/16W		R658	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R454	1-216-833-11	METAL CHIP	10K	5%	1/16W		R659	1-216-864-11	METAL CHIP	0			
R456	1-216-856-11	METAL CHIP	820K	5%	1/16W		R660	1-216-812-11	METAL CHIP	180	5%	1/16W	
R457	1-216-821-11	METAL CHIP	1K	5%	1/16W		R661	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R458	1-216-825-11	METAL CHIP	2.2K	5%	1/16W		R662	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R459	1-216-825-11	METAL CHIP	2.2K	5%	1/16W		R664	1-216-845-11	METAL CHIP	100K	5%	1/16W	
							R665	1-216-853-11	METAL CHIP	470K	5%	1/16W	

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Ref. No.	Part No.	Description	Remark			Ref. No.	Part No.	Description	Remark		
R667	1-216-830-11	METAL CHIP	5.6K	5%	1/16W	R728	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R669	1-216-833-11	METAL CHIP	10K	5%	1/16W	R729	1-216-830-11	METAL CHIP	5.6K	5%	1/16W
R670	1-216-821-11	METAL CHIP	1K	5%	1/16W						
R671	1-216-821-11	METAL CHIP	1K	5%	1/16W	R730	1-216-821-11	METAL CHIP	1K	5%	1/16W
R672	1-216-833-11	METAL CHIP	10K	5%	1/16W	R731	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R673	1-216-833-11	METAL CHIP	10K	5%	1/16W	R735	1-216-837-11	METAL CHIP	22K	5%	1/16W
						R737	1-216-864-11	METAL CHIP	0		
R674	1-216-833-11	METAL CHIP	10K	5%	1/16W	R738	1-216-824-11	METAL CHIP	1.8K	5%	1/16W
R675	1-216-831-11	METAL CHIP	6.8K	5%	1/16W						
R676	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	R739	1-216-822-11	METAL CHIP	1.2K	5%	1/16W
R677	1-216-822-11	METAL CHIP	1.2K	5%	1/16W	R740	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R678	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	R741	1-216-833-11	METAL CHIP	10K	5%	1/16W
						R742	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R680	1-216-833-11	METAL CHIP	10K	5%	1/16W	R743	1-216-821-11	METAL CHIP	1K	5%	1/16W
R681	1-216-815-11	METAL CHIP	330	5%	1/16W						
R682	1-216-815-11	METAL CHIP	330	5%	1/16W	R744	1-216-821-11	METAL CHIP	1K	5%	1/16W
R683	1-216-815-11	METAL CHIP	330	5%	1/16W	R746	1-216-833-11	METAL CHIP	10K	5%	1/16W
R684	1-216-821-11	METAL CHIP	1K	5%	1/16W	R747	1-216-834-11	METAL CHIP	12K	5%	1/16W
						R748	1-216-828-11	METAL CHIP	3.9K	5%	1/16W
R685	1-216-828-11	METAL CHIP	3.9K	5%	1/16W	R749	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R686	1-216-826-11	METAL CHIP	2.7K	5%	1/16W						
R688	1-216-819-11	METAL CHIP	680	5%	1/16W	R750	1-216-818-11	METAL CHIP	560	5%	1/16W
R690	1-216-819-11	METAL CHIP	680	5%	1/16W	R751	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R691	1-216-864-11	METAL CHIP	0			R752	1-216-833-11	METAL CHIP	10K	5%	1/16W
						R753	1-216-832-11	METAL CHIP	8.2K	5%	1/16W
R692	1-216-833-11	METAL CHIP	10K	5%	1/16W	R754	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R693	1-216-813-11	METAL CHIP	220	5%	1/16W						
R694	1-216-821-11	METAL CHIP	1K	5%	1/16W	R755	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R696	1-216-810-11	METAL CHIP	120	5%	1/16W	R756	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R697	1-216-812-11	METAL CHIP	180	5%	1/16W	R757	1-216-699-11	METAL CHIP	100K	0.5%	1/10W
						R758	1-216-845-11	METAL CHIP	100K	5%	1/16W
R698	1-216-813-11	METAL CHIP	220	5%	1/16W	R759	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R701	1-216-833-11	METAL CHIP	10K	5%	1/16W						
R704	1-216-833-11	METAL CHIP	10K	5%	1/16W	R760	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R706	1-216-864-11	METAL CHIP	0			R762	1-216-845-11	METAL CHIP	100K	5%	1/16W
R707	1-216-833-11	METAL CHIP	10K	5%	1/16W	R763	1-216-845-11	METAL CHIP	100K	5%	1/16W
						R764	1-216-845-11	METAL CHIP	100K	5%	1/16W
R709	1-216-841-11	METAL CHIP	47K	5%	1/16W	R765	1-216-821-11	METAL CHIP	1K	5%	1/16W
R710	1-216-824-11	METAL CHIP	1.8K	5%	1/16W						
R711	1-216-836-11	METAL CHIP	18K	5%	1/16W	R767	1-216-821-11	METAL CHIP	1K	5%	1/16W
R712	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	R768	1-216-822-11	METAL CHIP	1.2K	5%	1/16W
R713	1-216-800-11	METAL GLAZE	18	5%	1/16W	R769	1-216-816-11	METAL CHIP	390	5%	1/16W
						R770	1-216-839-11	METAL CHIP	33K	5%	1/16W
R714	1-216-841-11	METAL CHIP	47K	5%	1/16W	R771	1-216-833-11	METAL CHIP	10K	5%	1/16W
R715	1-216-841-11	METAL CHIP	47K	5%	1/16W						
R716	1-216-039-00	METAL CHIP	390	5%	1/10W	R772	1-216-821-11	METAL CHIP	1K	5%	1/16W
R717	1-216-833-11	METAL CHIP	10K	5%	1/16W	R773	1-216-821-11	METAL CHIP	1K	5%	1/16W
R718	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	R774	1-216-824-11	METAL CHIP	1.8K	5%	1/16W
						R775	1-216-841-11	METAL CHIP	47K	5%	1/16W
R719	1-216-841-11	METAL CHIP	47K	5%	1/16W	R776	1-216-824-11	METAL CHIP	1.8K	5%	1/16W
R720	1-216-841-11	METAL CHIP	47K	5%	1/16W						
R721	1-216-041-00	METAL CHIP	470	5%	1/10W	R777	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R723	1-216-699-11	METAL CHIP	100K	0.5%	1/10W	R778	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R724	1-216-828-11	METAL CHIP	3.9K	5%	1/16W	R779	1-216-839-11	METAL CHIP	33K	5%	1/16W
						R780	1-216-833-11	METAL CHIP	10K	5%	1/16W
R725	1-216-830-11	METAL CHIP	5.6K	5%	1/16W	R781	1-216-814-11	METAL CHIP	270	5%	1/16W
R726	1-216-817-11	METAL CHIP	470	5%	1/16W						
R727	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	R782	1-216-831-11	METAL CHIP	6.8K	5%	1/16W

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
R783	1-216-838-11	METAL CHIP	27K 5% 1/16W	R849	1-216-809-11	METAL CHIP	100 5% 1/16W
R787	1-216-841-11	METAL CHIP	47K 5% 1/16W	R850	1-216-810-11	METAL CHIP	120 5% 1/16W
R788	1-216-837-11	METAL CHIP	22K 5% 1/16W	R851	1-216-825-11	METAL CHIP	2.2K 5% 1/16W
R789	1-216-829-11	METAL CHIP	4.7K 5% 1/16W	R852	1-216-821-11	METAL CHIP	1K 5% 1/16W
R790	1-216-821-11	METAL CHIP	1K 5% 1/16W	R854	1-216-823-11	METAL CHIP	1.5K 5% 1/16W
R791	1-216-833-11	METAL CHIP	10K 5% 1/16W	R856	1-216-833-11	METAL CHIP	10K 5% 1/16W
R792	1-216-833-11	METAL CHIP	10K 5% 1/16W	R857	1-216-833-11	METAL CHIP	10K 5% 1/16W
R793	1-216-815-11	METAL CHIP	330 5% 1/16W	R858	1-216-864-11	METAL CHIP	0
R794	1-216-817-11	METAL CHIP	470 5% 1/16W	R859	1-216-823-11	METAL CHIP	1.5K 5% 1/16W
R795	1-216-811-11	METAL CHIP	150 5% 1/16W	R860	1-216-864-11	METAL CHIP	0
R797	1-216-819-11	METAL CHIP	680 5% 1/16W	R861	1-216-814-11	METAL CHIP	270 5% 1/16W
R799	1-216-835-11	METAL CHIP	15K 5% 1/16W	R862	1-216-834-11	METAL CHIP	12K 5% 1/16W
R801	1-216-817-11	METAL CHIP	470 5% 1/16W	R863	1-216-834-11	METAL CHIP	12K 5% 1/16W
R802	1-216-831-11	METAL CHIP	6.8K 5% 1/16W	R865	1-216-816-11	METAL CHIP	390 5% 1/16W
R803	1-216-827-11	METAL CHIP	3.3K 5% 1/16W	R866	1-216-817-11	METAL CHIP	470 5% 1/16W
R804	1-216-823-11	METAL CHIP	1.5K 5% 1/16W	R867	1-216-814-11	METAL CHIP	270 5% 1/16W
R805	1-216-833-11	METAL CHIP	10K 5% 1/16W	R869	1-216-857-11	METAL CHIP	1M 5% 1/16W
R806	1-216-829-11	METAL CHIP	4.7K 5% 1/16W	R870	1-216-810-11	METAL CHIP	120 5% 1/16W
R807	1-216-832-11	METAL CHIP	8.2K 5% 1/16W	R871	1-216-842-11	METAL CHIP	56K 5% 1/16W
R808	1-216-818-11	METAL CHIP	560 5% 1/16W	R872	1-216-844-11	METAL CHIP	82K 5% 1/16W
R809	1-216-814-11	METAL CHIP	270 5% 1/16W	R873	1-216-825-11	METAL CHIP	2.2K 5% 1/16W
R810	1-216-820-11	METAL CHIP	820 5% 1/16W	R874	1-216-834-11	METAL CHIP	12K 5% 1/16W
R812	1-216-833-11	METAL CHIP	10K 5% 1/16W	R875	1-216-839-11	METAL CHIP	33K 5% 1/16W
R814	1-216-864-11	METAL CHIP	0	R876	1-216-842-11	METAL CHIP	56K 5% 1/16W
R817	1-216-833-11	METAL CHIP	10K 5% 1/16W	R877	1-216-817-11	METAL CHIP	470 5% 1/16W
R818	1-216-833-11	METAL CHIP	10K 5% 1/16W	R878	1-216-821-11	METAL CHIP	1K 5% 1/16W
R819	1-216-837-11	METAL CHIP	22K 5% 1/16W	R879	1-216-821-11	METAL CHIP	1K 5% 1/16W
R820	1-216-827-11	METAL CHIP	3.3K 5% 1/16W	R880	1-216-825-11	METAL CHIP	2.2K 5% 1/16W
R822	1-216-823-11	METAL CHIP	1.5K 5% 1/16W	R881	1-216-825-11	METAL CHIP	2.2K 5% 1/16W
R823	1-216-821-11	METAL CHIP	1K 5% 1/16W	R882	1-216-821-11	METAL CHIP	1K 5% 1/16W
R824	1-216-821-11	METAL CHIP	1K 5% 1/16W	R883	1-216-821-11	METAL CHIP	1K 5% 1/16W
R825	1-216-817-11	METAL CHIP	470 5% 1/16W	R884	1-216-841-11	METAL CHIP	47K 5% 1/16W
R826	1-216-809-11	METAL CHIP	100 5% 1/16W	R885	1-216-825-11	METAL CHIP	2.2K 5% 1/16W
R828	1-216-825-11	METAL CHIP	2.2K 5% 1/16W	R886	1-216-824-11	METAL CHIP	1.8K 5% 1/16W
R831	1-216-864-11	METAL CHIP	0	R887	1-216-857-11	METAL CHIP	1M 5% 1/16W
R832	1-216-833-11	METAL CHIP	10K 5% 1/16W	R888	1-216-810-11	METAL CHIP	120 5% 1/16W
R834	1-216-814-11	METAL CHIP	270 5% 1/16W	R889	1-216-844-11	METAL CHIP	82K 5% 1/16W
R835	1-216-814-11	METAL CHIP	270 5% 1/16W	R890	1-216-819-11	METAL CHIP	680 5% 1/16W
R836	1-216-822-11	METAL CHIP	1.2K 5% 1/16W	R891	1-216-818-11	METAL CHIP	560 5% 1/16W
R837	1-216-830-11	METAL CHIP	5.6K 5% 1/16W	R892	1-216-839-11	METAL CHIP	33K 5% 1/16W
R838	1-216-817-11	METAL CHIP	470 5% 1/16W	R893	1-216-842-11	METAL CHIP	56K 5% 1/16W
R839	1-216-817-11	METAL CHIP	470 5% 1/16W	R894	1-216-817-11	METAL CHIP	470 5% 1/16W
R840	1-216-821-11	METAL CHIP	1K 5% 1/16W	R895	1-216-821-11	METAL CHIP	1K 5% 1/16W
R841	1-216-817-11	METAL CHIP	470 5% 1/16W	R896	1-216-826-11	METAL CHIP	2.7K 5% 1/16W
R844	1-216-829-11	METAL CHIP	4.7K 5% 1/16W	R897	1-216-825-11	METAL CHIP	2.2K 5% 1/16W
R845	1-216-841-11	METAL CHIP	47K 5% 1/16W	R898	1-216-825-11	METAL CHIP	2.2K 5% 1/16W
R846	1-216-833-11	METAL CHIP	10K 5% 1/16W	R899	1-216-825-11	METAL CHIP	2.2K 5% 1/16W
R847	1-216-837-11	METAL CHIP	22K 5% 1/16W	R900	1-216-833-11	METAL CHIP	10K 5% 1/16W
R848	1-216-821-11	METAL CHIP	1K 5% 1/16W	R901	1-216-804-11	METAL CHIP	39 5% 1/16W

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Ref. No.	Part No.	Description	Remark
R902	1-216-804-11	METAL CHIP	39 5% 1/16W
R903	1-216-821-11	METAL CHIP	1K 5% 1/16W
R908	1-216-804-11	METAL CHIP	39 5% 1/16W
R909	1-216-804-11	METAL CHIP	39 5% 1/16W
R910	1-216-864-11	METAL CHIP	0
R911	1-216-864-11	METAL CHIP	0
R912	1-216-864-11	METAL CHIP	0
R913	1-216-833-11	METAL CHIP	10K 5% 1/16W
R917	1-216-833-11	METAL CHIP	10K 5% 1/16W
R919	1-216-821-11	METAL CHIP	1K 5% 1/16W
R920	1-216-821-11	METAL CHIP	1K 5% 1/16W
R923	1-216-828-11	METAL CHIP	3.9K 5% 1/16W
R924	1-216-821-11	METAL CHIP	1K 5% 1/16W
R925	1-216-828-11	METAL CHIP	3.9K 5% 1/16W
R926	1-216-821-11	METAL CHIP	1K 5% 1/16W
R932	1-216-864-11	METAL CHIP	0
R934	1-216-864-11	METAL CHIP	0
R936	1-216-864-11	METAL CHIP	0
R939	1-216-864-11	METAL CHIP	0
R941	1-216-864-11	METAL CHIP	0
R943	1-216-821-11	METAL CHIP	1K 5% 1/16W
R945	1-216-848-11	METAL CHIP	180K 5% 1/16W
R946	1-218-853-11	METAL CHIP	4.7K 0.50% 1/16W
R947	1-218-861-11	METAL CHIP	3.9K 0.50% 1/16W
R948	1-218-845-11	METAL CHIP	820 0.50% 1/16W
R949	1-216-847-11	METAL CHIP	150K 5% 1/16W
R950	1-216-846-11	METAL CHIP	120K 5% 1/16W
R951	1-218-859-11	METAL CHIP	3.3K 0.50% 1/16W
R952	1-218-863-11	METAL CHIP	4.7K 0.50% 1/16W
R953	1-218-843-11	METAL CHIP	680 0.50% 1/16W
R954	1-216-841-11	METAL CHIP	47K 5% 1/16W
R955	1-216-837-11	METAL CHIP	22K 5% 1/16W
R956	1-216-835-11	METAL CHIP	15K 5% 1/16W
R957	1-216-822-11	METAL CHIP	1.2K 5% 1/16W
R958	1-216-822-11	METAL CHIP	1.2K 5% 1/16W
R959	1-216-817-11	METAL CHIP	470 5% 1/16W
R960	1-216-037-00	METAL CHIP	330 5% 1/10W
R961	1-216-829-11	METAL CHIP	4.7K 5% 1/16W
R962	1-216-804-11	METAL CHIP	39 5% 1/16W
R963	1-216-804-11	METAL CHIP	39 5% 1/16W
R969	1-216-296-00	METAL CHIP	0 5% 1/8W
R970	1-216-825-11	METAL CHIP	2.2K 5% 1/16W
R971	1-216-829-11	METAL CHIP	4.7K 5% 1/16W
R972	1-216-822-11	METAL CHIP	1.2K 5% 1/16W
R973	1-216-833-11	METAL CHIP	10K 5% 1/16W
R974	1-216-823-11	METAL CHIP	1.5K 5% 1/16W
R976	1-216-833-11	METAL CHIP	10K 5% 1/16W
R977	1-216-841-11	METAL CHIP	47K 5% 1/16W

Ref. No.	Part No.	Description	Remark
R978	1-216-818-11	METAL CHIP	560 5% 1/16W
R981	1-216-837-11	METAL CHIP	22K 5% 1/16W
R983	1-216-837-11	METAL CHIP	22K 5% 1/16W
R984	1-216-833-11	METAL CHIP	10K 5% 1/16W
R985	1-216-837-11	METAL CHIP	22K 5% 1/16W
R986	1-216-847-11	METAL CHIP	150K 5% 1/16W
R987	1-216-847-11	METAL CHIP	150K 5% 1/16W
R989	1-216-829-11	METAL CHIP	4.7K 5% 1/16W
R994	1-216-821-11	METAL CHIP	1K 5% 1/16W
R995	1-216-820-11	METAL CHIP	820 5% 1/16W

< VARIABLE RESISTOR >

RV416	1-238-092-11	RES. ADJ. CERMET 47K
RV650	1-238-091-11	RES. ADJ. CERMET 22K
RV651	1-238-092-11	RES. ADJ. CERMET 47K
RV652	1-238-091-11	RES. ADJ. CERMET 22K
RV653	1-238-089-11	RES. ADJ. CERMET 4.7K
RV654	1-238-089-11	RES. ADJ. CERMET 4.7K
RV655	1-238-086-11	RES. ADJ. CERMET 470
RV656	1-238-091-11	RES. ADJ. CERMET 22K
RV657	1-238-089-11	RES. ADJ. CERMET 4.7K
RV658	1-238-090-11	RES. ADJ. CERMET 10K
RV661	1-238-089-11	RES. ADJ. CERMET 4.7K
RV662	1-238-087-11	RES. ADJ. CERMET 1K
RV663	1-238-087-11	RES. ADJ. CERMET 1K
RV664	1-238-087-11	RES. ADJ. CERMET 1K
RV666	1-238-087-11	RES. ADJ. CERMET 1K

< FLEXIBLE BOARD >

W650	1-634-431-11	FP-260 FLEXIBLE BOARD
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< CRYSTAL >

X650	1-577-117-21	VIBRATOR, CRYSTAL
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* A-7062-798-A VC-86 BOARD, COMPLETE

(Ref. No 1,000 Series)

* 3-744-763-01 CASE, SHIELD, VC

< CAPACITOR >

C301	1-162-945-11	CERAMIC CHIP	22PF	5%	50V
C302	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C401	1-164-634-11	CERAMIC CHIP	1uF		16V
C402	1-164-634-11	CERAMIC CHIP	1uF		16V
C403	1-164-156-11	CERAMIC CHIP	0.1uF		25V

Ref. No.	Part No.	Description		Remark
C404	1-164-634-11	CERAMIC CHIP	1uF	16V
C406	1-164-156-11	CERAMIC CHIP	0.1uF	25V
C407	1-164-634-11	CERAMIC CHIP	1uF	16V
C408	1-162-964-11	CERAMIC CHIP	0.001uF	10% 50V
C409	1-164-156-11	CERAMIC CHIP	0.1uF	25V
C410	1-162-974-11	CERAMIC CHIP	0.01uF	50V
C411	1-124-566-11	ELECT	120uF	20% 6.3V
C412	1-162-974-11	CERAMIC CHIP	0.01uF	50V
C413	1-164-634-11	CERAMIC CHIP	1uF	16V
C414	1-162-917-11	CERAMIC CHIP	15PF	5% 50V
C415	1-163-038-00	CERAMIC CHIP	0.1uF	25V
C416	1-163-038-00	CERAMIC CHIP	0.1uF	25V
C417	1-163-038-00	CERAMIC CHIP	0.1uF	25V
C419	1-162-964-11	CERAMIC CHIP	0.001uF	10% 50V
C420	1-162-941-11	CERAMIC CHIP	10PF	0.5PF 50V
C501	1-126-205-11	ELECT CHIP	47uF	20% 6.3V
C502	1-162-974-11	CERAMIC CHIP	0.01uF	50V
C503	1-164-634-11	CERAMIC CHIP	1uF	16V
C506	1-164-156-11	CERAMIC CHIP	0.1uF	25V
C507	1-162-974-11	CERAMIC CHIP	0.01uF	50V
C508	1-135-072-21	TANTALUM CHIP	0.22uF	10% 35V
C509	1-162-970-11	CERAMIC CHIP	0.01uF	10% 25V
C510	1-128-004-11	ELECT CHIP	10uF	20% 16V
C511	1-135-180-21	TANTALUM CHIP	3.3uF	20% 6.3V
C512	1-135-180-21	TANTALUM CHIP	3.3uF	20% 6.3V
C513	1-135-180-21	TANTALUM CHIP	3.3uF	20% 6.3V
C514	1-164-156-11	CERAMIC CHIP	0.1uF	25V
C521	1-162-638-11	CERAMIC CHIP	1uF	16V
C651	1-162-974-11	CERAMIC CHIP	0.01uF	50V
C653	1-162-974-11	CERAMIC CHIP	0.01uF	50V
C654	1-162-974-11	CERAMIC CHIP	0.01uF	50V
C656	1-135-091-00	TANTALUM CHIP	1uF	20% 16V
C657	1-135-091-00	TANTALUM CHIP	1uF	20% 16V
C659	1-135-180-21	TANTALUM CHIP	3.3uF	20% 6.3V
C660	1-164-156-11	CERAMIC CHIP	0.1uF	25V
C661	1-164-005-11	CERAMIC CHIP	0.47uF	25V
C662	1-162-964-11	CERAMIC CHIP	0.001uF	10% 50V
C663	1-164-156-11	CERAMIC CHIP	0.1uF	25V
C664	1-162-974-11	CERAMIC CHIP	0.01uF	50V
C665	1-162-974-11	CERAMIC CHIP	0.01uF	50V
C666	1-162-974-11	CERAMIC CHIP	0.01uF	50V
C667	1-164-156-11	CERAMIC CHIP	0.1uF	25V
C668	1-164-156-11	CERAMIC CHIP	0.1uF	25V
C669	1-164-156-11	CERAMIC CHIP	0.1uF	25V
C750	1-162-974-11	CERAMIC CHIP	0.01uF	50V
C751	1-135-151-21	TANTALUM CHIP	4.7uF	20% 4V

Ref. No.	Part No.	Description	Remark
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< CONNECTOR >

CN301	1-568-338-11	CONNECTOR, BOARD TO BOARD 24P	
CN302	1-568-331-11	CONNECTOR, BOARD TO BOARD 10P	
CN304	1-565-877-11	PIN, CONNECTOR (PC BOARD) 5P	
CN305	1-566-528-21	CONNECTOR, FPC (ZIF) 12P	
CN306	* 1-565-875-11	PIN, CONNECTOR (PC BOARD) 3P	
CN307	* 1-565-876-11	PIN, CONNECTOR (PC BOARD) 4P	
CN308	* 1-565-541-11	PIN, CONNECTOR (PC BOARD) 2P	
CN651	* 1-566-187-11	PIN, CONNECTOR (PC BOARD) 8P	
CN652	1-565-527-11	PIN, CONNECTOR (PC BOARD) 2P	
CN653	1-565-877-11	PIN, CONNECTOR (PC BOARD) 5P	
CN654	1-565-874-11	PIN, CONNECTOR (PC BOARD) 2P	
CN655	* 1-565-529-21	PIN, CONNECTOR (PC BOARD) 4P	

< DIODE >

D501	8-719-404-46	DIODE	MA110
D502	8-719-404-46	DIODE	MA110
D503	8-719-404-46	DIODE	MA110
D504	8-719-404-46	DIODE	MA110
D651	8-719-976-90	DIODE	DTZ4.3A
D651	8-719-976-91	DIODE	DTZ4.3B
D652	8-719-977-34	DIODE	DTZ12

< FILTER >

FL301	1-236-759-21	FILTER, LOW PASS (TRAP)	
FL302	1-415-731-21	DELAY LINE, LC (YH)	
FL303	1-415-819-11	DELAY LINE, LC	
FL401	1-415-763-21	DELAY LINE, LC	
FL402	1-415-730-21	DELAY LINE, LC (100NS)	

< HIC >

HIC301	A-7068-186-A	MX-10 BOARD, COMPLETE (HIC)	
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< IC >

IC301	8-759-635-27	IC	M62352GP
IC401	8-752-038-XX	IC	CXA1392R
IC501	8-759-038-85	IC	MC68HC11E9FU-SC400226
IC504	8-759-635-27	IC	M62352GP
IC508	8-759-937-56	IC	S-8054ALB-LM-S
IC509	8-759-509-05	IC	XRU4066BF
IC510	8-759-998-96	IC	LM324D
IC651	8-759-981-82	IC	RC3414M
IC652	8-759-998-96	IC	LM324D
IC653	8-759-500-11	IC	MM1036XFF
IC655	8-759-208-11	IC	TC4053BFHB
IC656	8-759-998-96	IC	LM324D

VC-86

Ref. No.	Part No.	Description	Remark
< COIL >			
L401	1-410-391-11	INDUCTOR, CHIP 68uH	
L502	1-412-058-11	INDUCTOR, CHIP 10uH	
L503	1-412-062-11	INDUCTOR, CHIP 47uH	
< TRANSISTOR >			
Q301	8-729-905-23	TRANSISTOR 2SA1576-R	
Q302	8-729-905-23	TRANSISTOR 2SA1576-R	
Q303	8-729-402-84	TRANSISTOR XN4601	
Q401	8-729-402-84	TRANSISTOR XN4601	
Q402	8-729-402-84	TRANSISTOR XN4601	
Q403	8-729-905-23	TRANSISTOR 2SA1576-R	
Q404	8-729-905-35	TRANSISTOR 2SC4081-R	
Q504	8-729-403-10	TRANSISTOR XN6215	
Q505	8-729-403-10	TRANSISTOR XN6215	
Q506	8-729-925-77	TRANSISTOR 1MH6	
Q507	8-729-420-50	TRANSISTOR UN5215	
Q508	8-729-402-78	TRANSISTOR XN6401	
Q509	8-729-403-10	TRANSISTOR XN6215	
Q510	8-729-905-35	TRANSISTOR 2SC4081-R	
Q513	8-729-402-84	TRANSISTOR XN4601	
Q516	8-729-905-35	TRANSISTOR 2SC4081-R	
Q517	8-729-905-23	TRANSISTOR 2SA1576-R	
Q652	8-729-402-42	TRANSISTOR UN5213	
Q653	8-729-905-23	TRANSISTOR 2SA1576-R	
Q654	8-729-106-60	TRANSISTOR 2SB1115A	
Q655	8-729-905-35	TRANSISTOR 2SC4081-R	
Q656	8-729-821-88	TRANSISTOR 2SK1332-3	
< RESISTOR >			
R301	1-216-864-11	METAL CHIP 0	
R302	1-216-820-11	METAL CHIP 820 5% 1/16W	
R304	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R307	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R310	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R311	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R312	1-216-836-11	METAL CHIP 18K 5% 1/16W	
R313	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R314	1-216-864-11	METAL CHIP 0	
R316	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R317	1-216-836-11	METAL CHIP 18K 5% 1/16W	
R318	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R321	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R322	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R325	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R327	1-216-864-11	METAL CHIP 0	
R350	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R351	1-216-841-11	METAL CHIP 47K 5% 1/16W	

Ref. No.	Part No.	Description	Remark
R401	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R403	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R404	1-216-830-11	METAL CHIP 5.6K 5% 1/16W	
R405	1-216-828-11	METAL CHIP 3.9K 5% 1/16W	
R406	1-216-864-11	METAL CHIP 0	
R407	1-216-822-11	METAL CHIP 1.2K 5% 1/16W	
R410	1-216-864-11	METAL CHIP 0	
R414	1-216-864-11	METAL CHIP 0	
R415	1-216-820-11	METAL CHIP 820 5% 1/16W	
R416	1-216-817-11	METAL CHIP 470 5% 1/16W	
R417	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R418	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R419	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R420	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R421	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R422	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R427	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R428	1-216-835-11	METAL CHIP 15K 5% 1/16W	
R429	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R432	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R435	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R437	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R440	1-216-864-11	METAL CHIP 0	
R501	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R502	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R503	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R504	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R505	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R506	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R508	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R509	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R510	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R513	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R514	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R515	1-216-857-11	METAL CHIP 1M 5% 1/16W	
R517	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R518	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R521	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R522	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R523	1-216-840-11	METAL CHIP 39K 5% 1/16W	
R524	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R525	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R526	1-216-847-11	METAL CHIP 150K 5% 1/16W	
R527	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R528	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R529	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R530	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R531	1-216-833-11	METAL CHIP 10K 5% 1/16W	

Ref. No.	Part No.	Description	Remark
R532	1-216-833-11	METAL CHIP 10K 5%	1/16W
R533	1-216-833-11	METAL CHIP 10K 5%	1/16W
R534	1-216-837-11	METAL CHIP 22K 5%	1/16W
R535	1-216-825-11	METAL CHIP 2.2K 5%	1/16W
R536	1-216-823-11	METAL CHIP 1.5K 5%	1/16W
R537	1-216-845-11	METAL CHIP 100K 5%	1/16W
R546	1-216-829-11	METAL CHIP 4.7K 5%	1/16W
R547	1-216-829-11	METAL CHIP 4.7K 5%	1/16W
R560	1-216-833-11	METAL CHIP 10K 5%	1/16W
R561	1-216-864-11	METAL CHIP 0	
R562	1-216-833-11	METAL CHIP 10K 5%	1/16W
R653	1-216-827-11	METAL CHIP 3.3K 5%	1/16W
R654	1-216-675-11	METAL CHIP 10K 0.5%	1/10W
R655	1-216-675-11	METAL CHIP 10K 0.5%	1/10W
R656	1-216-679-11	METAL CHIP 15K 0.5%	1/10W
R657	1-216-679-11	METAL CHIP 15K 0.5%	1/10W
R658	1-216-841-11	METAL CHIP 47K 5%	1/16W
R666	1-216-819-11	METAL CHIP 680 5%	1/16W
R667	1-216-821-11	METAL CHIP 1K 5%	1/16W
R672	1-216-821-11	METAL CHIP 1K 5%	1/16W
R678	1-216-789-11	METAL CHIP 2.2 5%	1/16W
R680	1-216-819-11	METAL CHIP 680 5%	1/16W
R681	1-216-820-11	METAL CHIP 820 5%	1/16W
R682	1-216-833-11	METAL CHIP 10K 5%	1/16W
R683	1-216-857-11	METAL CHIP 1M 5%	1/16W
R684	1-216-823-11	METAL CHIP 1.5K 5%	1/16W
R685	1-216-848-11	METAL CHIP 180K 5%	1/16W
R686	1-216-826-11	METAL CHIP 2.7K 5%	1/16W
R687	1-216-833-11	METAL CHIP 10K 5%	1/16W
R688	1-216-841-11	METAL CHIP 47K 5%	1/16W
R689	1-216-843-11	METAL CHIP 68K 5%	1/16W
R690	1-216-839-11	METAL CHIP 33K 5%	1/16W
R691	1-216-849-11	METAL CHIP 220K 5%	1/16W
R692	1-216-833-11	METAL CHIP 10K 5%	1/16W
R693	1-216-831-11	METAL CHIP 6.8K 5%	1/16W
R694	1-216-848-11	METAL CHIP 180K 5%	1/16W
R695	1-216-844-11	METAL CHIP 82K 5%	1/16W
R698	1-216-837-11	METAL CHIP 22K 5%	1/16W
R699	1-216-827-11	METAL CHIP 3.3K 5%	1/16W
R700	1-216-855-11	METAL CHIP 680K 5%	1/16W
R701	1-216-837-11	METAL CHIP 22K 5%	1/16W
R750	1-216-635-11	METAL CHIP 68K 0.5%	1/10W
R751	1-216-833-11	METAL CHIP 10K 5%	1/16W
R752	1-216-105-00	METAL CHIP 220K 5%	1/10W
R753	1-216-687-11	METAL CHIP 33K 0.5%	1/10W
R754	1-216-789-11	METAL CHIP 2.2 5%	1/16W
R755	1-216-826-11	METAL CHIP 2.7K 5%	1/16W
R800	1-216-825-11	METAL CHIP 2.2K 5%	1/16W
R801	1-216-825-11	METAL CHIP 2.2K 5%	1/16W

Ref. No.	Part No.	Description	Remark
R802	1-216-825-11	METAL CHIP 2.2K 5%	1/16W
R803	1-216-825-11	METAL CHIP 2.2K 5%	1/16W
R804	1-216-825-11	METAL CHIP 2.2K 5%	1/16W
R805	1-216-825-11	METAL CHIP 2.2K 5%	1/16W
R806	1-216-825-11	METAL CHIP 2.2K 5%	1/16W
R807	1-216-825-11	METAL CHIP 2.2K 5%	1/16W
R808	1-216-847-11	METAL CHIP 150K 5%	1/16W
R809	1-216-821-11	METAL CHIP 1K 5%	1/16W

< CRYSTAL >

X501 1-578-689-21 VIBRATOR

* A-7062-278-A VF-26 BOARD, COMPLETE

(Ref. No. 8,000 Series)

< CAPACITOR >

C901	1-126-369-11	ELECT 220uF 20%	6.3V
C902	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C904	1-127-515-11	ELECT(SOLID) 47uF 20%	6.3V
C905	1-163-009-11	CERAMIC CHIP 0.001uF	10% 50V
C906	1-163-115-00	CERAMIC CHIP 82PF 5%	50V
C907	△ 1-162-625-11	CERAMIC CHIP 0.0047uF 5%	50V
C908	△ 1-164-182-11	CERAMIC CHIP 0.0033uF 10%	50V
C909	1-126-193-11	ELECT 1uF 20%	50V
C911	1-131-388-00	TANTALUM 68uF 10%	6.3V
C912	1-102-038-00	CERAMIC 0.001uF	
C913	1-163-033-00	CERAMIC CHIP 0.022uF	50V
C915	1-126-193-11	ELECT 1uF 20%	50V
C916	1-163-037-11	CERAMIC CHIP 0.022uF 10%	25V (TYPE 1)
C916	1-163-145-00	CERAMIC CHIP 0.0015uF 5%	50V (TYPE 2)
C917	1-135-162-21	TANTALUM CHIP 33uF 20%	6.3V (TYPE 2)
C917	1-135-166-21	TANTALUM CHIP 47uF 10%	10V (TYPE 1)
C918	1-162-638-11	CERAMIC CHIP 1uF	16V
C919	1-135-070-00	TANTALUM CHIP 0.1uF 10%	35V
C920	1-164-232-11	CERAMIC CHIP 0.01uF	50V

< CONNECTOR >



CN901 * 1-566-195-11 PIN, CONNECTOR (PC BOARD) 2P
 CN902 * 1-566-195-11 PIN, CONNECTOR (PC BOARD) 2P
 CN904 1-575-570-21 CONNECTOR, FPC/FFC 6P

< COMPOSITION CIRCUIT BLOCK >

CP901 1-238-119-11 RES. ADJ

< CONNECTOR >

CRT901 1-526-978-21 SOCKET ASSY, CRT

Note: The components identified by mark  or dotted line with mark  are critical for safety. Replace only with part number specified.

VF-26

VF-27

Ref. No.	Part No.	Description	Remark
< DIODE >			
D670	8-719-404-46	DIODE MA110	
D903	8-719-400-20	DIODE MA152WA	
D955	8-719-404-19	DIODE LN1251C	
< IC >			
IC901	8-759-420-01	IC AN2512S (TYPE 1)	
IC901	8-759-511-01	IC BA7147F (TYPE 2)	
IC901	8-759-514-92	IC XRA7147F (TYPE 2)	
< COIL >			
L901	1-410-645-31	INDUCTOR 100uH	
L902	1-410-385-11	INDUCTOR CHIP 22uH	
L903	△ 1-459-858-11	COIL, FERRITE (HLC)	
< TRANSISTOR >			
Q903	8-729-106-68	TRANSISTOR 2SD1615-AGP	
Q904	8-729-216-31	TRANSISTOR 2SA11630	
< RESISTOR >			
R902	1-216-051-00	METAL CHIP 1.2K 5% 1/10W (TYPE 1)	
R903	1-216-041-00	METAL CHIP 470 5% 1/10W	
R907	1-216-063-00	METAL CHIP 3.9K 5% 1/10W	
R908	1-216-063-00	METAL CHIP 3.9K 5% 1/10W	
R909	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R911	1-216-079-00	METAL CHIP 18K 5% 1/10W	
R914	1-216-133-00	METAL CHIP 3.3M 5% 1/10W	
R915	1-216-133-00	METAL CHIP 3.3M 5% 1/10W	
R916	1-216-125-00	METAL CHIP 1.5M 5% 1/10W	
R917	1-216-121-00	METAL CHIP 1M 5% 1/10W	
R919	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R920	1-216-111-00	METAL CHIP 390K 5% 1/10W (TYPE 2)	
R920	1-216-113-00	METAL CHIP 470K 5% 1/10W (TYPE 1)	
R921	1-216-011-00	METAL CHIP 27 5% 1/10W (TYPE 2)	
R921	1-216-013-00	METAL CHIP 33 5% 1/10W (TYPE 1)	
R922	1-216-055-00	METAL CHIP 1.8K 5% 1/10W	
R923	1-216-025-00	METAL CHIP 100 5% 1/10W	
R924	1-216-306-11	METAL CHIP 3.9 5% 1/10W	
R925	1-216-334-11	METAL CHIP 22K 1% 1/10W (TYPE 2)	
R925	1-216-336-11	METAL CHIP 47K 1% 1/10W (TYPE 1)	
R926	1-216-107-00	METAL CHIP 270K 5% 1/10W (TYPE 1)	
R926	1-218-165-11	METAL CHIP 220K 1% 1/10W (TYPE 2)	
R928	1-216-870-11	METAL CHIP 180K 1% 1/10W	
R929	1-216-053-00	METAL CHIP 1.5K 5% 1/10W (TYPE 1)	
R929	1-216-073-00	METAL CHIP 10K 5% 1/10W (TYPE 2)	
R930	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R931	1-216-121-00	METAL CHIP 1M 5% 1/10W (TYPE 1)	
R950	1-216-041-00	METAL CHIP 470 5% 1/10W	

Ref. No.	Part No.	Description	Remark
R951	1-216-295-00	METAL CHIP 0 5% 1/10W	
< VARIABLE RESISTOR >			
RV901	1-238-647-11	RES. ADJ. METAL GLAZE 4.7M	
< TRANSFORMER >			
T901	△ 1-439-428-11	TRANSFORMER ASSY, FLYBACK	
< THERMISTOR >			
TH901	1-807-938-11	THERMISTOR	

* A-7062-279-A VF-27 BOARD, COMPLETE			

(Ref. No 9,000 Series)			
< CAPACITOR >			
C901	1-124-442-00	ELECT 330uF 20% 6.3V	
C903	1-163-077-00	CERAMIC CHIP 0.1uF 10% 25V	
C904	1-126-160-11	ELECT 1uF 20% 50V	
C905	1-163-037-11	CERAMIC CHIP 0.022uF 10% 25V	
C906	1-131-381-00	TANTALUM 47uF 10% 10V	
C907	1-162-638-11	CERAMIC CHIP 1uF 16V	
C908	1-136-165-00	FILM 0.1uF 5% 50V	
C909	1-163-109-00	CERAMIC CHIP 47PF 5% 50V	
C910	1-124-587-11	ELECT 220uF 20% 6.3V	
C911	1-163-141-00	CERAMIC CHIP 0.001uF 5% 50V	
C912	△ 1-162-625-11	CERAMIC CHIP 0.0047uF 5% 50V	
C913	△ 1-162-625-11	CERAMIC CHIP 0.0047uF 5% 50V	
C914	△ 1-163-209-00	CERAMIC CHIP 0.0015uF 5% 50V	
C915	1-126-090-11	ELECT 82uF 20% 10V	
C916	1-126-163-11	ELECT 4.7uF 20% 50V	
C918	1-163-037-11	CERAMIC CHIP 0.022uF 10% 25V	
C919	1-102-038-00	CERAMIC 0.001uF	
< CONNECTOR >			
CN902	* 1-566-195-11	PIN, CONNECTOR (PC BOARD) 2P	
CN903	* 1-566-195-11	PIN, CONNECTOR (PC BOARD) 2P	
CN904	1-575-570-21	CONNECTOR, FPC/FFC 6P	
< DIODE >			
D903	8-719-400-20	DIODE MA152WA	
D955	8-719-404-19	DIODE LN1251C	
< IC >			
IC901	8-759-420-01	IC AN2512S	

Note: The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

Ref. No.	Part No.	Description	Remark
< COIL >			
L901	1-410-831-21	INDUCTOR 82uH	
L902	1-408-977-21	INDUCTOR 39uH	
L903	△ 1-459-858-11	COIL, FERRITE (HLC)	
< TRANSISTOR >			
Q903	8-729-216-31	TRANSISTOR 2SA1163G	
Q904	8-729-100-66	TRANSISTOR 2SC1623	
Q905	8-729-106-68	TRANSISTOR 2SD1615-AGP	
< RESISTOR >			
R903	1-216-041-00	METAL CHIP 470 5% 1/10W	
R905	1-216-007-00	METAL CHIP 18 5% 1/10W	
R906	1-216-121-00	METAL CHIP 1M 5% 1/10W	
R908	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R909	1-216-113-00	METAL CHIP 470K 5% 1/10W	
R910	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
R911	1-216-013-00	METAL CHIP 33 5% 1/10W	
R912	1-216-691-11	METAL CHIP 47K 0.5% 1/10W	
R913	1-216-107-00	METAL CHIP 270K 5% 1/10W	
R914	1-216-025-00	METAL CHIP 100 5% 1/10W	
R915	1-216-306-11	METAL CHIP 3.9 5% 1/10W	
R917	1-216-045-00	METAL CHIP 680 5% 1/10W	
R918	1-216-069-00	METAL CHIP 6.8K 5% 1/10W	
R919	1-216-748-11	METAL CHIP 39K 5% 1/10W	
R920	1-216-748-11	METAL CHIP 39K 5% 1/10W	
R921	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
R922	1-216-101-00	METAL CHIP 150K 5% 1/10W	
R923	1-216-121-00	METAL CHIP 1M 5% 1/10W	
R924	1-216-131-11	METAL CHIP 2.7M 5% 1/10W	
R925	1-216-131-11	METAL CHIP 2.7M 5% 1/10W	
R926	1-216-055-00	METAL CHIP 1.8K 5% 1/10W	
R928	1-216-051-00	METAL CHIP 1.2K 5% 1/10W	
R933	1-216-121-00	METAL CHIP 1M 5% 1/10W	
R950	1-216-041-00	METAL CHIP 470 5% 1/10W	
< VARIABLE RESISTOR >			
RV901	1-230-873-11	RES. ADJ. METAL 47K	
RV902	1-230-866-11	RES. ADJ. METAL 470	
RV903	1-230-869-11	RES. ADJ. METAL 4.7K	
RV904	1-228-762-00	RES. ADJ. METAL GLAZE 1M	
< TRANSFORMER >			
T901	△ 1-439-431-11	TRANSFORMER ASSY, FLYBACK	
< THERMISTOR >			
TH901	1-807-938-11	THERMISTOR	

Ref. No.	Part No.	Description	Remark
< CONNECTOR >			
W901	1-540-019-21	SOCKET ASSY, CRT	

MISCELLANEOUS			

121	* 8-814-268-00	MICROPHONE C-2033 SET	
214	1-569-347-11	CONNECTOR, FPC (TRANSLATION) 13P	
222	1-569-346-11	CONNECTOR, FPC (TRANSLATION) 10P	
263	1-808-505-12	SENSOR (DEW)	
404	△ 1-466-230-21	CONVERTER UNIT, D/D	
406	1-547-482-11	LENS, ZOOM (VCL-8508XJ)	
410	1-547-381-12	FILTER BLOCK, OPTICAL	
413	8-752-604-72	IC ICX039AN-2	
451	1-547-482-11	LENS, ZOOM (VCL-8508XJ)	
455	3-708-237-01	MOTOR ASSY, AF	
465	3-708-240-01	MOTOR ASSY, PZ	
466	3-708-235-01	METER ASSY, IG	
J101	1-537-241-11	TERMINAL BOARD (BATTERY)	
L901-1△	1-451-310-21	DEFLECTION YOKE (B/W)	
M902	8-835-331-01	MOTOR, DC U-22A	
M903	A-7040-208-A	MOTOR ASSY, THREADING	
S903	1-572-320-11	SWITCH, PUSH (ZOOM)	
V901-1△	1-546-085-11	CATHODE-RAY TUBE, B/W	
V901-2△	1-452-482-11	CRT ASSY (M91JY260WB)	

Note: The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

Ref. No.	Part No.	Description	Remark
----------	----------	-------------	--------

ACCESSORY & PACKING MATERIAL

	1-465-395-81	COMMANDER, REMOTE (RMT-502)	
	1-571-164-11	SWITCH, ANTENNA CHANGE (CABLE) (UK)	
	1-575-334-11	CORD, CONNECTION (AV 3P-3P)	
*	1-575-335-21	CORD, CONNECTION	
	3-340-514-01	BAG, PROTECTION	
	3-712-673-01	SCREWDRIVER (UK)	
	3-738-517-01	BELT, SHOULDER	
	3-753-112-11	MANUAL, INSTRUCTION (ENGLISH)	
	3-753-112-41	MANUAL, INSTRUCTION (FRENCH/GERMAN/SPANISH) (AEP)	
	3-753-112-51	MANUAL, INSTRUCTION (DUTCH/SWEDISH/ITALIAN) (AEP)	
*	3-940-119-51	INDIVIDUAL CARTON	
*	3-940-910-01	CUSHION, ACC	
*	3-942-402-01	CUSHION (UPPER)	
*	3-942-403-01	CUSHION (LOWER)	
**	AC-V35	AC POWER ADAPTOR	
***	NP-66H	BATTERY PACK	
***	RFU-89EA	RFU ADAPTOR (UK)	
***	RFU-90EA	RFU ADAPTOR (AEP)	

Note

** MARK PARTS IS AVAILABLE FOR REPAIR SERVICE.
*** MARK PARTS IS AVAILABLE AS AN OPTIONAL ACCESSORIES.

HARDWARE LIST

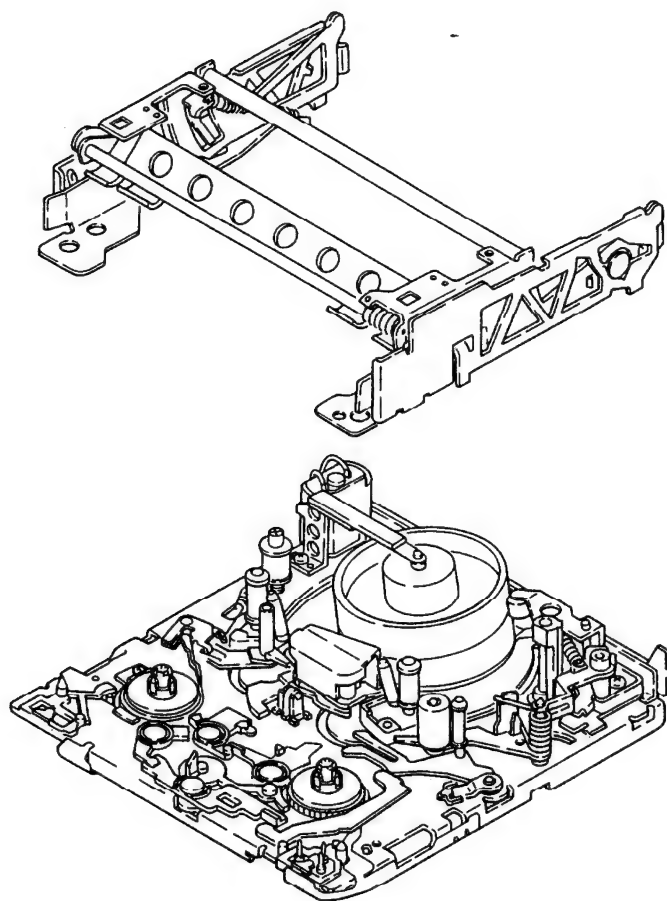
# 1	7-685-103-19	+ PTPWH (2X5)
# 2	7-627-554-07	PRECISION SCREW +P 2X2.2 TYPE3
# 3	7-627-553-48	PRECISION SCREW +P 2X4 TYPE 3
# 4	7-627-553-37	SCREW (M2X3), SPECIAL HEAD
# 5	7-627-553-68	PRECISION SCREW +P 2X6 TYPE3
# 7	7-627-555-88	SCREW (M1.4X1.8)
# 8	7-621-255-25	SCREW +BVTT 2X4 (S)
# 9	7-621-255-15	SCREW +P 2X3
#10	7-627-553-47	PRECISION SCREW +P 2X4
#11	7-621-281-15	SCREW +P 2X2
#12	7-671-155-01	STEEL BALL 3.0

mm Video MECHANICAL ADJUSTMENT MANUAL III

U MECHANISM

Video 8

Please use in conjunction with the SERVICE MANUAL.



8 MECHANISM DECK
SONY®

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1. PREPARATIONS FOR MECHANICAL BLOCK CHECK, ADJUSTMENT AND REPLACEMENT

Note: For removal of the cabinet, the boards, the cassette compartment, etc., refer to the service guides.

1-1. OPERATION WITHOUT CASSETTE COMPARTMENT ASSEMBLY AND TAPE

Note: The unit will not work if exposed to a strong light.

1-1-1. How to Trigger the Loading Operation (See Fig. 1-1.)

- 1) Supply power to the unit after removing the cabinet, the camera block, the cassette compartment assembly, etc., as indicated in the service guides. (This will enable operation of the mechanical deck.)
- 2) Cover the LED assembly with an opaque cap, etc. ①.
- 3) Attach a piece of tape to the RECOG switch ② so that the pin is held down.
- 4) Push the EJECT lever ③ in the direction of the arrow ④.

1-1-2. Setting the Playback Mode (See Fig. 1-1.)

- 1) Follow the procedures in section 1-1-1. above.
- 2) Put the rubber band ⑤ around the S and T reels.
- 3) Press the PLAY switch of unit, then push the tension regulator arm assembly ⑥ in the direction of the arrow ⑦ when the T reel starts to rotate (the tension regulator band will be released, and the S reel will start rotating).
- 4) To stop operation, press the STOP switch.

1-1-3. Eject Operation (See Fig. 1-1.)

- 1) To eject, turn the EJECT switch on.

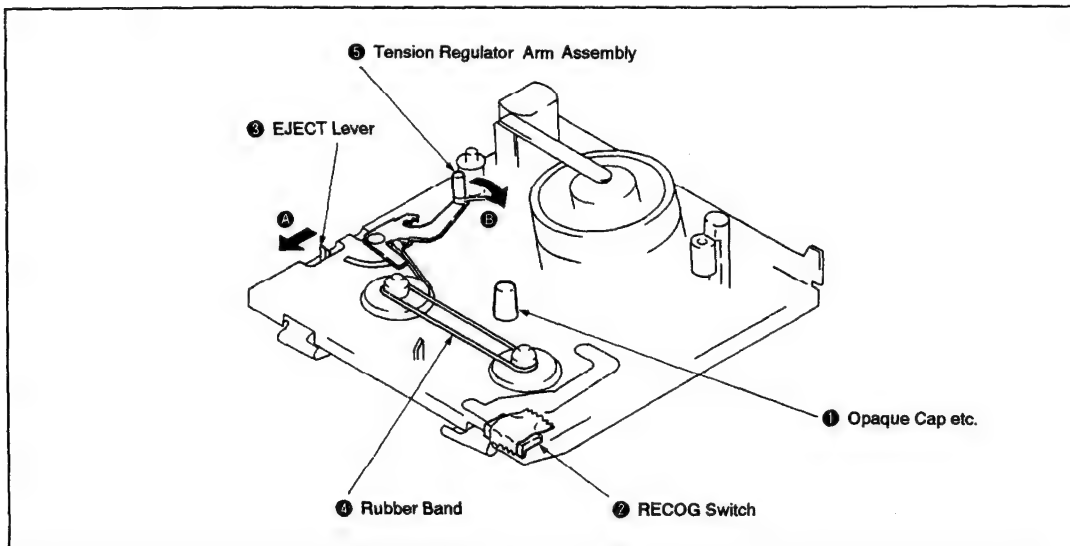


Fig. 1-1.

1-2. THE MODE SELECTOR

1-2-1. Name of Each Part (external) (See Fig. 1-2.)

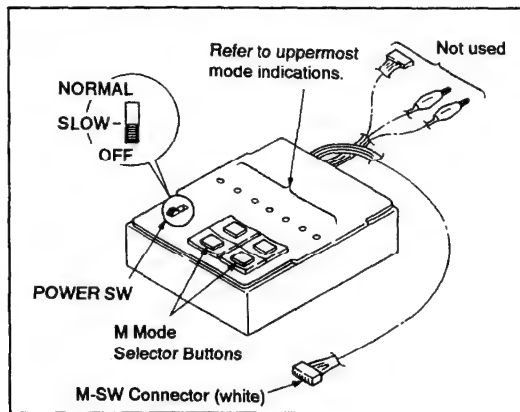


Fig. 1-2.

1-2-2. Connections (See Fig. 1-3.)

- 1) Mount the MODE SELECTOR III panel (Ref. No. J-9) ① onto the mode selector.
- 2) Attach the conversion connector (Ref. No. J-8) ③ of MODE SELECTOR III to the 6-pin connector (white) ② of the mode selector M-SW.
- 3) Remove the FP-89 flexible board ⑤ from the flexible connector ④.
- 4) Attach the FP-89 flexible board ⑤ to the flexible connector ⑥ of the MODE SELECTOR III conversion connector ③, then attach the 2-pin connector (white) ⑧ of the loading motor to the 2-pin connector (white) ⑦.

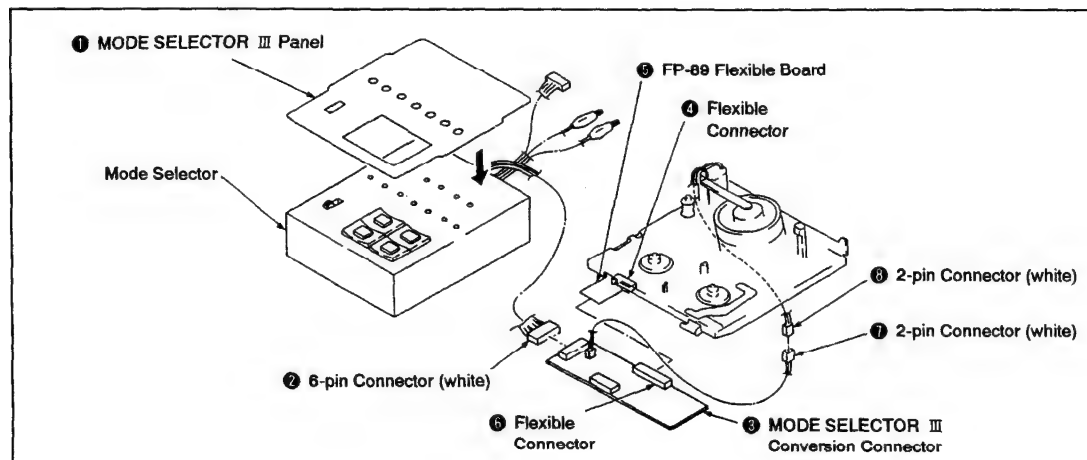


Fig. 1-3.

1-2-3. Handling (See Figs. 1-2. and 1-4.)

- Use only the M mode selector buttons.
- Refer to mode indications on the uppermost part of the MODE SELECTOR III panel.
- If the right M mode selector button is kept pressed, the lit indication will change in the order of EJECT → (IA) → ULD → (IB) → STOP → (IC) → FWD.
- To change modes in the reverse direction (from FWD to EJECT), press the left selector button.

Note: For this U mechanism, the uppermost indicators on the MODE SELECTOR III panel are used. The IA, IB and IC indications light up during mode changes.

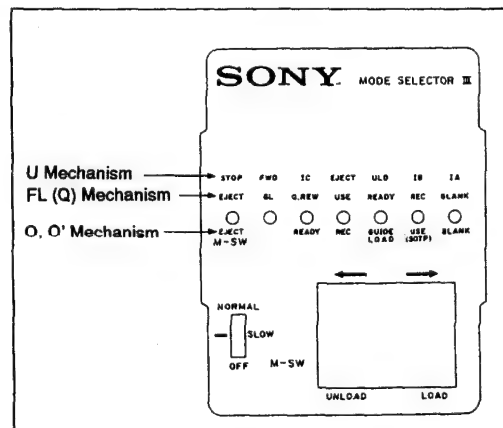


Fig. 1-4.

2. PERIODICAL CHECK AND MAINTENANCE (See Fig. 2-1.)

The following periodical check and maintenance procedures are necessary to ensure proper operation and to protect the tapes as well as the unit, and the following maintenance procedures must be always carried out after repairing regardless of how long the unit has been used.

2-1. ROTARY DRUM ASSEMBLY CLEANING

- 1) While pressing a piece of chamois leather (Ref. No. J-2) moistened in cleaning fluid (Ref. No. J-1) lightly against the rotary drum, turn the rotary upper drum slowly counter-clockwise with your fingers.

Note: Do not drive the drum with the motor, and do not turn it clockwise.

Do not move the chamois leather vertically against the head tip; this can damage the head tip. Strictly follow the cleaning instructions above.

2-2. TAPE PATH CLEANING

- 1) Set the cassette compartment assembly to the eject state, or remove it. Then clean the tape path (guides No. 1 to 7, capstan shaft, pinch rollers) with a piece of chamois leather moistened in cleaning fluid (See Fig. 2-1).

2-3. DRIVE SYSTEM CLEANING

- 1) Clean the drive system (timing belt, reel table surface) with a piece of cloth moistened in cleaning fluid.

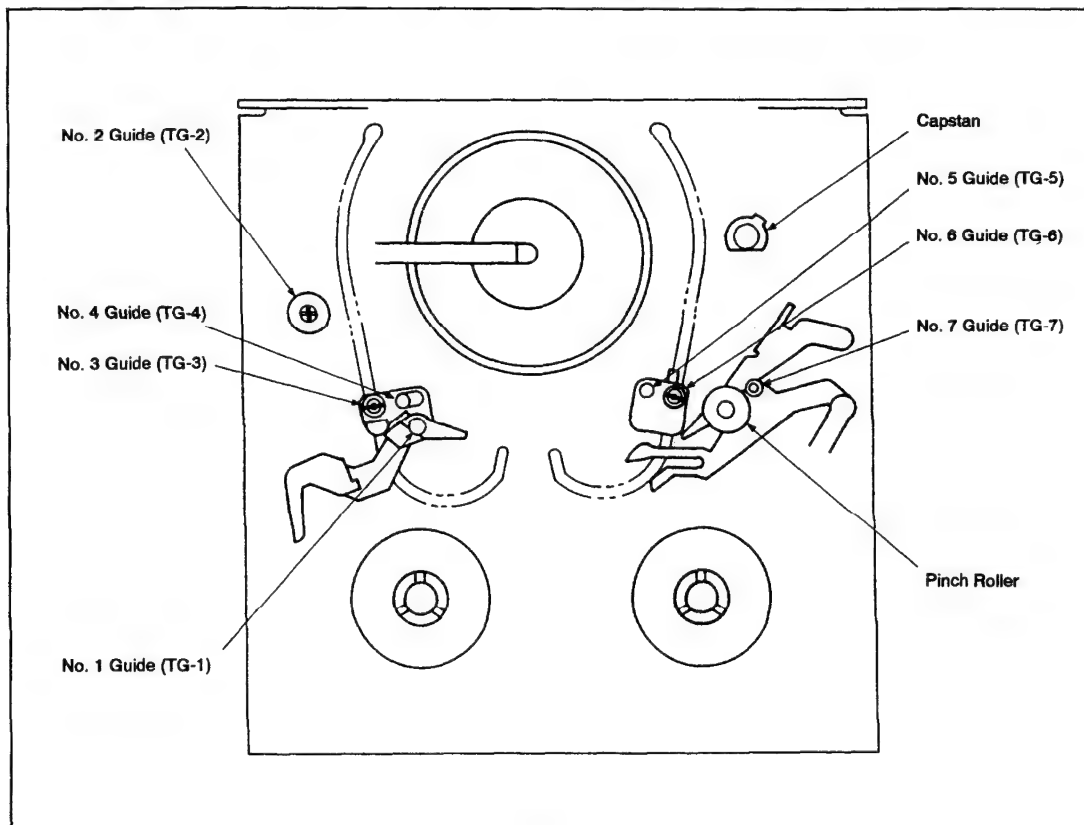


Fig. 2-1.

2-4. PERIODICAL CHECK ITEMS

○ Cleaning ◎ Lubrication ☆ Check

Maintenance and Check Item		Operation time (H)										Remarks
		500	1,000	1,500	2,000	2,500	3,000	3,500	4,000	4,500	5,000	
Cleaning and Demagnetizing	Tape path surfaces Cleaning	○	○	○	○	○	○	○	○	○	○	Do not oil.
	Rotary drum assembly cleaning and demagnetizing	○	○	○	○	○	○	○	○	○	○	Do not oil.
Drive System	Relay belt (short)	—	☆	—	☆	—	☆	—	☆	—	☆	3-728-866-01
	Relay belt (long)	—	☆	—	☆	—	☆	—	☆	—	☆	3-728-865-01
	Capstan shaft	—	◎	—	◎	—	◎	—	◎	—	◎	Take care that no oil gets on tape path surfaces.
	Idler pulley axle	—	◎	—	◎	—	◎	—	◎	—	◎	
	Loading motor	—	☆	—	☆	—	☆	—	☆	—	☆	1-541-612-11
Performance Check	Abnormal noise	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	
	Back tension measurement	—	☆	—	☆	—	☆	—	☆	—	☆	
	Brake system	—	☆	—	☆	—	☆	—	☆	—	☆	
	FWD, RVS torque measurement	—	☆	—	☆	—	☆	—	☆	—	☆	

Notes: When overhauling the unit, perform parts replacement referring to the table above.

Regarding Oil:

- Always use the specified oil (using oil of different viscosity, etc. can cause troubles of several kinds).
Specified oil: Part No. 7-661-018-01
(Mitsubishi Diamond Oil Hydrofluid EP56)
- Be sure that no dirt is mixed in the oil to be used on axle bearings. Use of dirty oil can result in bearing wear and burning.
- By "one drop of oil" is meant the quantity of oil adhering to the end of a 2mm-diameter rod as shown in Fig. 2-2.

On grease:

- Use the specified grease.
Grease: Part No. 7-662-010-08
(Sony grease SGL-701)

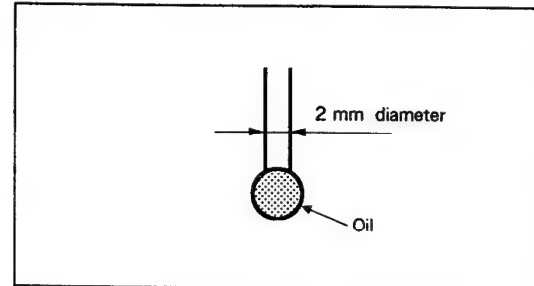



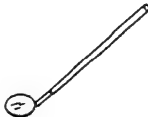
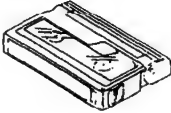
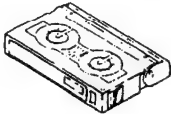

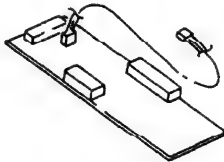
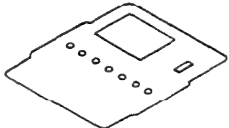
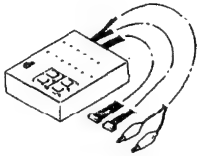
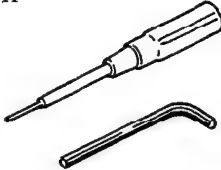
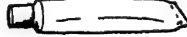


Fig. 2-2.

2-5. SERVICING TOOLS

Ref. No.	Name	Part Code	Marking	Application, etc.
J-1	Cleaning fluid	Y-2031-001-0	—	
J-2	Chamois cloth	2-034-697-00	—	
J-3	Head demagnetizer	Commercially available	—	
J-4	Dental mirror Spare mirror	J-6080-029-A J-6080-030-1	SL-5052	Tape path
J-5	Alignment tape NTSC (WR5-1N) PAL (WR5-1C)	8-967-995-01 8-967-995-06		Tape path
J-6	FWD/RVS takeup torque cassette	J-6080-624-A	GD-2086	
J-7	Rotary drum jig	(Attached to the maintenance rotary upper drum)		
J-8	Mode selector III conversion connector	J-6082-021-A		General
J-9	Mode selector III panel	J-6082-023-A		General
J-10	Mode selector	J-6080-825-A		General
J-11	Hexagonal wrench detection (0.89 mm) or L wrench (0.89 mm)	7-700-766-01 7-700-736-06		Tape path
J-12	Sony grease (SGL-701)	7-662-010-08		

Other devices: Oscilloscope
Analog tester (20 k Ω)

J-1 	J-2 	J-3 	J-4 
J-5 	J-6 	J-7  (Attached to the maintenance rotary upper drum)	J-8 
J-9 	J-10 	J-11 	J-12 

3. MECHANICAL BLOCK CHECK, ADJUSTMENT AND REPLACEMENT

- Notes:**
- Use the mode selector (Ref. No. J-10) for procedures in this chapter.
 - Modes within a frame are those set by pressing the buttons of the mode selector.

3-1. HC ROLLER ASSEMBLY

1. Removal (See Fig. 3-1.)

- 1) Remove the screw ①, then remove the HC roller assembly ②.

2. Installation (See Fig. 3-1.)

- 1) Align the two dowels ③ attached to the HC roller assembly ② with the two holes ④ in the mechanism chassis.
- 2) Secure the HC roller assembly ② with the screw ①.

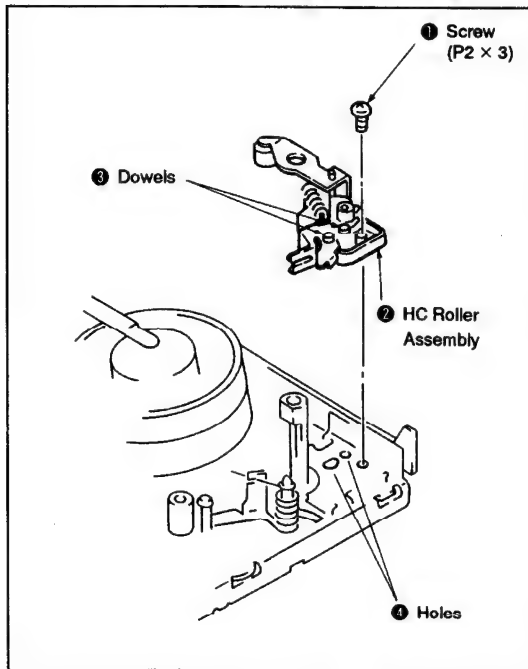


Fig. 3-1.

3-2. GUIDE GUARD ASSEMBLY

1. Removal (See Fig. 3-2.)

- Remove the screw ①, then remove the guide guard assembly ②.

2. Installation (See Fig. 3-2.)

- 1) Align the dowel ③ attached to the guide guard assembly ② with the hole ④.
- 2) Secure the guide guard assembly ② with the screw ①.

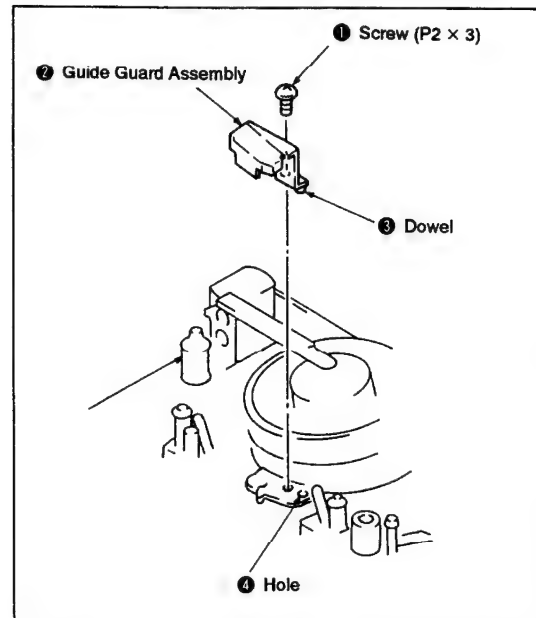


Fig. 3-2.

3-3. DC MOTOR (CAPSTAN MOTOR) ASSEMBLY

1. Removal (See Fig. 3-3.)

- 1) Set the **ULD** mode.
- 2) Turn the stopper ① in the direction of the arrow A as far as it will go.
- 3) Remove the two screws ②, then remove the DC motor ③.

2. Installation (See Fig. 3-3.)

- 1) Align the two screwed dowels ④ with the two holes ⑤, then engage the toothed part ⑥ with the connecting gear ⑦.
- 2) Secure the DC motor assembly ③ with the two screws ②.
- 3) Turn the stopper ① in the direction of the arrow B as far as it will go.

Note:

- When engaging the gears, take care not to damage their teeth.
- Do not leave any clearance between the DC motor ③ and the chassis.
- Do not touch the capstan motor axle*, the oil seal* and the rotor*.

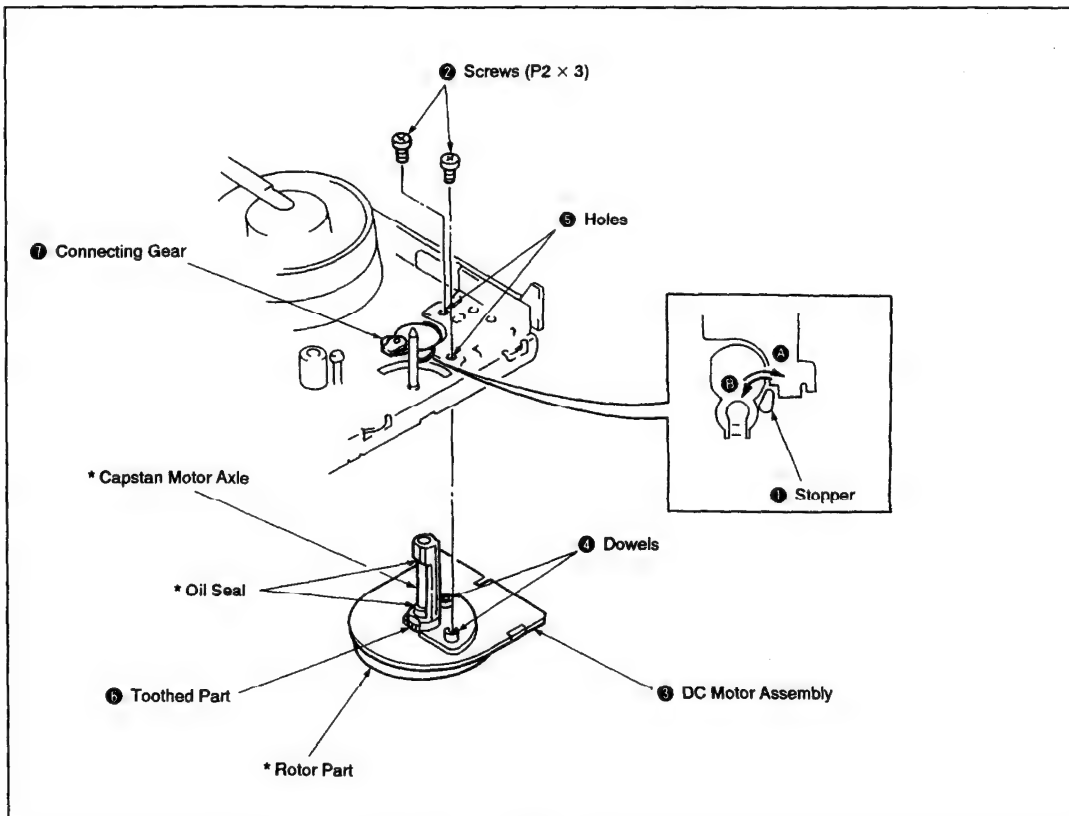


Fig. 3-3.

3-4. S BRAKE, T BRAKE

1. Removal (See Fig. 3-4.)

- 1) Remove the torsion coil spring (ST) ①.
- 2) Remove the axle holding pin ②, then remove the T brake ③.
- 3) Remove the axle holding pin ④, then remove the S brake ⑤.

2. Installation (See Fig. 3-4.)

- 1) While fitting the toothed part ⑥ into the notch ⑦, mount the S brake ⑤.
- 2) Insert the axle holding pin ②.
- 3) Insert the axle ⑧ to the S reel side of the brake release arm ④ so that the A part comes closer to the drum than part B, and mount the T brake ③.
- 4) Insert the axle holding pin ④.
- 5) Insert the torsion coil spring (ST) ① below the claw ⑪ of the axle ⑩, then hook it to two claws ⑫.

Note: Confirm that the claws of axle holding pins ② and ④ are not broken before assembling.

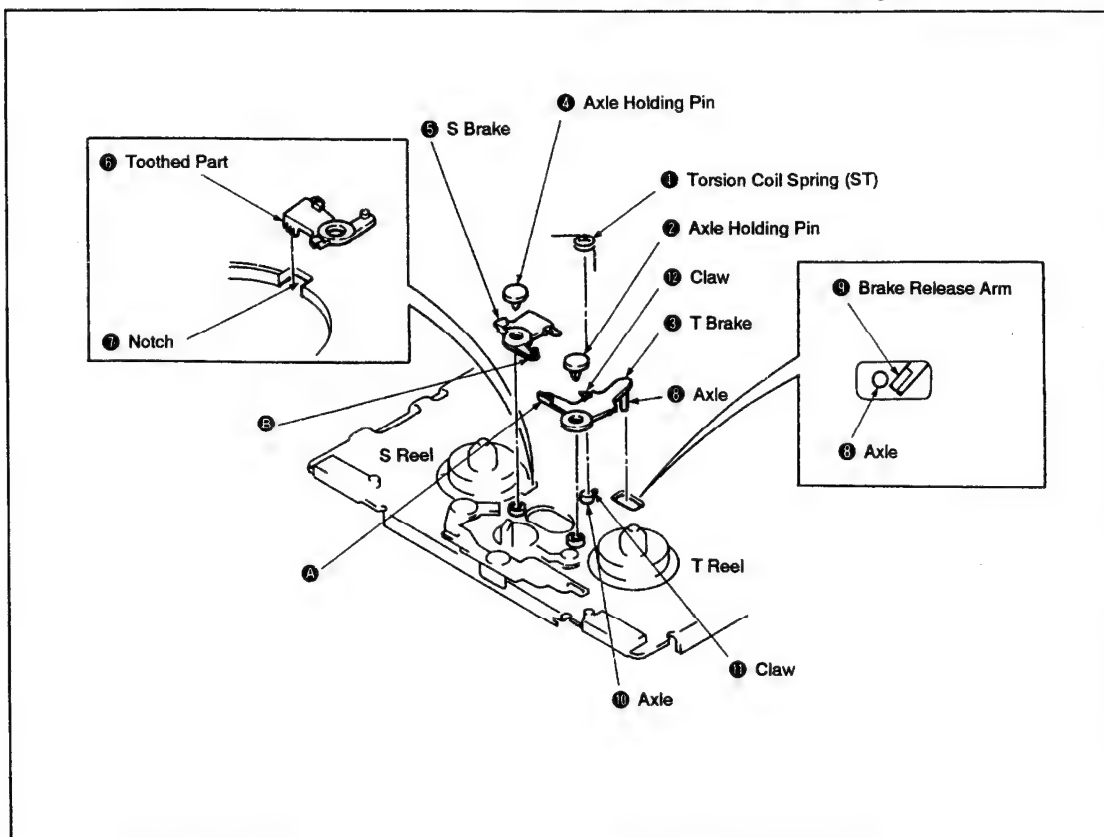


Fig. 3-4.

3-5. LB BRAKE, AXLE HOLDING PINS

1. Removal (See Fig. 3-5.)

- 1) Remove the screw ①, then remove the TL holding plate ②.
- 2) Remove the axle holding pin ③, then remove the LB brake ④.
- 3) Remove the axle holding pin ⑤, then remove the LB lever ⑥.

2. Installation (See Fig. 3-5.)

- 1) Mount the LB lever ⑥ matching it to pin ⑦ of the LB gear, then secure it with the axle holding pin ⑤.
- 2) Insert the pin ⑧ into the notch ⑨ of the LB lever ⑥, then mount the LB brake ④ while inserting the toothed part ⑩ into the notch ⑪.
- 3) Insert the axle holding pin ③.
- 4) Align the dowel ⑬ with the hole ⑫, then mount the TL holding plate and secure it with the screw ①.

Note: Confirm that the claws of axle holding pins ③ and ⑤ are not broken before assembling.

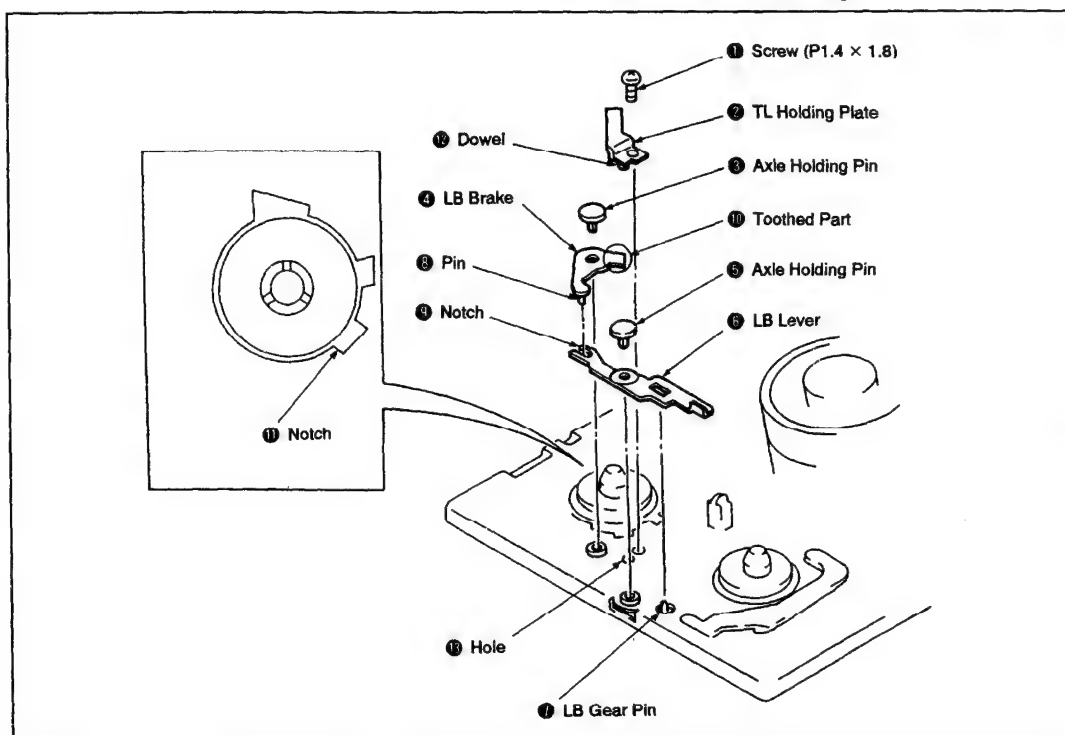


Fig. 3-5.

3-6. LB RELEASE ARM

1. Removal (See Fig. 3-6.)

- 1) While pushing the claw ① in the direction of the arrow, remove the LB release arm ②.

2. Installation (See Fig. 3-6.)

- 1) Fit the LB release arm ② to the axle ③, insert protrusions ④, ⑤, ⑥, ⑦ into the three holes ⑧, then secure with the claw ①.

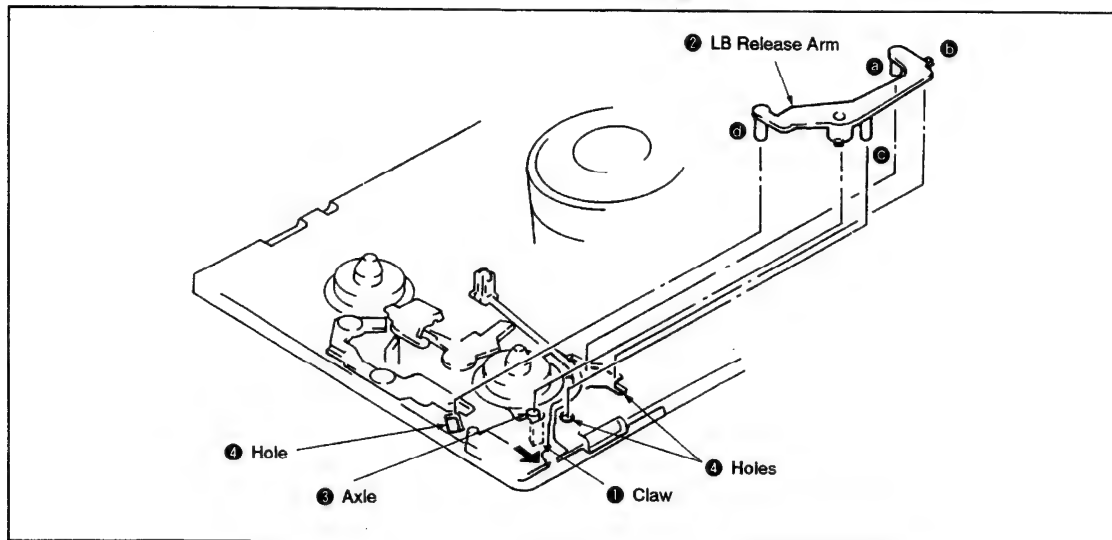


Fig. 3-6.

3-7. RK STOPPER, RK STOPPER ARMS

1. Removal (See Fig. 3-7.)

- 1) Remove the torsion coil spring (RK) ①.
- 2) Open the chassis claw ②, then remove the RK stopper arm ③.
- 3) Remove the RK stopper ④.

2. Installation (See Fig. 3-7.)

- 1) Mount the RK stopper ④ onto the axle ⑤.
- 2) Mount the RK stopper arm ③ onto the axle ⑥, insert Pin ⑩ into hole ⑪, then hook the claw ⑦ of the chassis to the hole ⑦.
- 3) Insert the torsion coil spring (RK) ① into the axle ⑤, then hook it to claws ⑧ and ⑨.

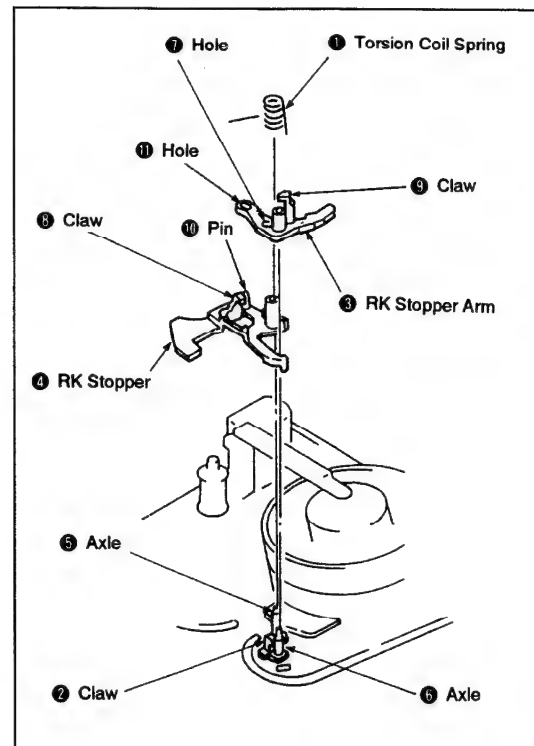


Fig. 3-7.

3-8. PINCH ARM ASSEMBLY, TG-7 ASSEMBLY

1. Removal (See Fig. 3-8.)

- 1) Set the **IB** mode.
- 2) Remove the stopper washer ①, then remove the pinch arm assembly ②.
- 3) Bend the claw ④ inside hole ③ in the direction of the arrow using a thin screwdriver or the like, then remove the TG-7 plate spring ⑤.
- 4) Remove the TG-7 arm assembly ⑥.

2. Installation (See Fig. 3-8.)

- 1) Grease the inner surfaces of hole ⑦ (See Fig. A).
- 2) Insert the axle ⑧ of the TG-7 arm assembly ⑥ into the hole ⑦.
- 3) Grease the shaded section ⑨ (See Fig. A).
- 4) Insert the TG-7 plate spring ⑤ into the hole ③, then secure it with the claw ④.
- 5) Apply half a drop of oil to the axle ⑨ (See Fig. B).
- 6) Fit the pinch arm assembly ② to the axle ⑨ and insert the pinch roller sub arm assembly tab ⑩ into the ⑪ part.
- 7) Install the stopper washer ①.

Note:

- Take care not to grease the screw ⑪ of the TG-7 arm assembly ⑥ (See Fig. A).
- When fitting the pinch arm assembly ② to the axle ⑨, make sure that it does not touch the TG-7 guide ⑫ or the rubber roller ⑬.
- After assembling, be sure to perform tape path adjustment as described in section 4.

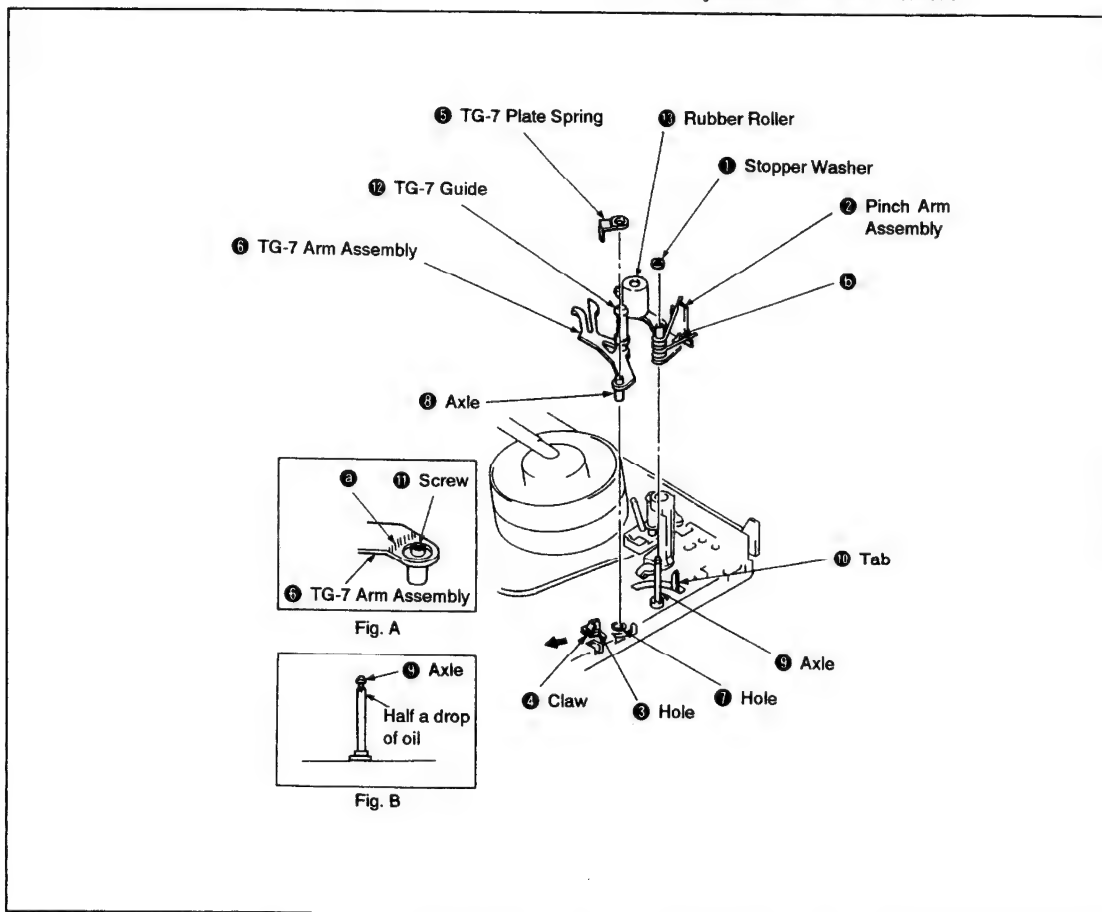


Fig. 3-8.

3-9. TG-2 ASSEMBLY

1. Removal (See Fig. 3-9.)

- 1) Remove the TG-2 upper flange assembly ①.
- 2) Remove the TG-2 roller ②, the TG-2 sleeve ③, the TG-2 lower flange ④ and the compression spring ⑤.

2. Installation (See Fig. 3-9.)

- 1) Mount the compression spring ⑤, the TG-2 lower flange ④, the TG-2 sleeve ③ and the TG-2 roller ② to the axle.
- 2) Secure the TG-2 upper flange ① to the axle by rotating it 4 to 6 turns.

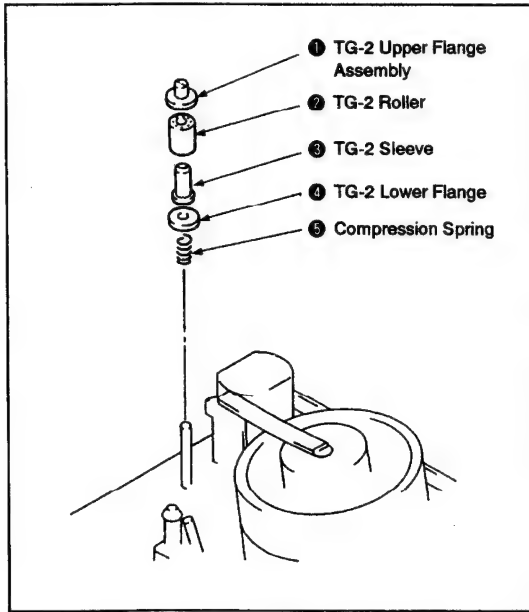


Fig. 3-9.

3. TG-2 Height Preset (see Fig. 3-10.)

- 1) Adjust height from the mechanism chassis upper surface to the TG-2 upper flange ① upper surface to 18.6 mm by turning the TG-2 upper flange ①.

Note: After adjustment, be sure to perform tape path adjustment as described in section 4.

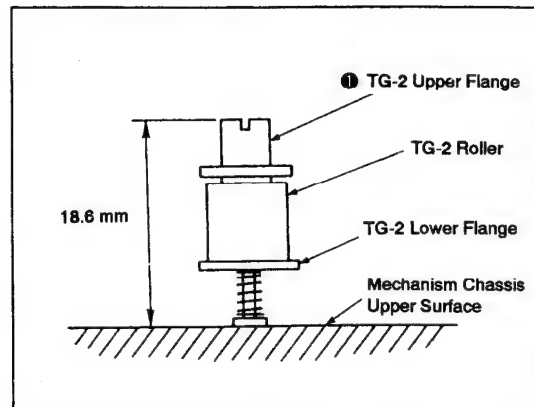


Fig. 3-10.

3-10. S REEL TABLE ASSEMBLY, T REEL TABLE ASSEMBLY

1. Removal (See Fig. 3-11.)

- 1) Remove the S brake and T brake as described in section 3-4.
- 2) Remove the TL holding plate as described in section 3-5.
- 3) Remove the tension regulator band assembly as described in section 3-11.
- 4) Remove the S reel table assembly ①.
- 5) Turn the stopper ② approx. 90° in the direction of the arrow ③.
- 6) While sliding the LB release arm ④ in the direction of the arrow ⑤, remove the T reel table assembly ④.

2. Installation (See Fig. 3-11.)

- 1) Apply half a drop of oil to the axle ⑥ (See Fig. A).
- 2) Move the RK gear ⑥ in the direction of the arrow ⑦ and the TS brake ⑦ in the direction of the arrow ⑧, putting them out of the way.
- 3) While sliding the LB release arm ④ in the direction of the arrow ⑤, mount the T reel table assembly ④ onto the axle ⑥, then turn the stopper ② in the direction of the arrow ③ as far as it will go.
- 4) Apply half a drop of oil to the axle ⑥ (See Fig. B).
- 5) Move the RK gear ⑥ in the direction of the arrow ⑦, the UL brake ⑧ in the direction of the arrow ⑨ and the LB brake ⑩ in the direction of the arrow ⑪, putting them out of the way.
- 6) Mount the S reel table ① onto the axle ⑥.
- 7) Mount the tension regulator band assembly as described in section 3-11.
- 8) Mount the TL holding plate as described in section 3-5.
- 9) Mount the S brake and T brake assemblies as described in section 3-4.

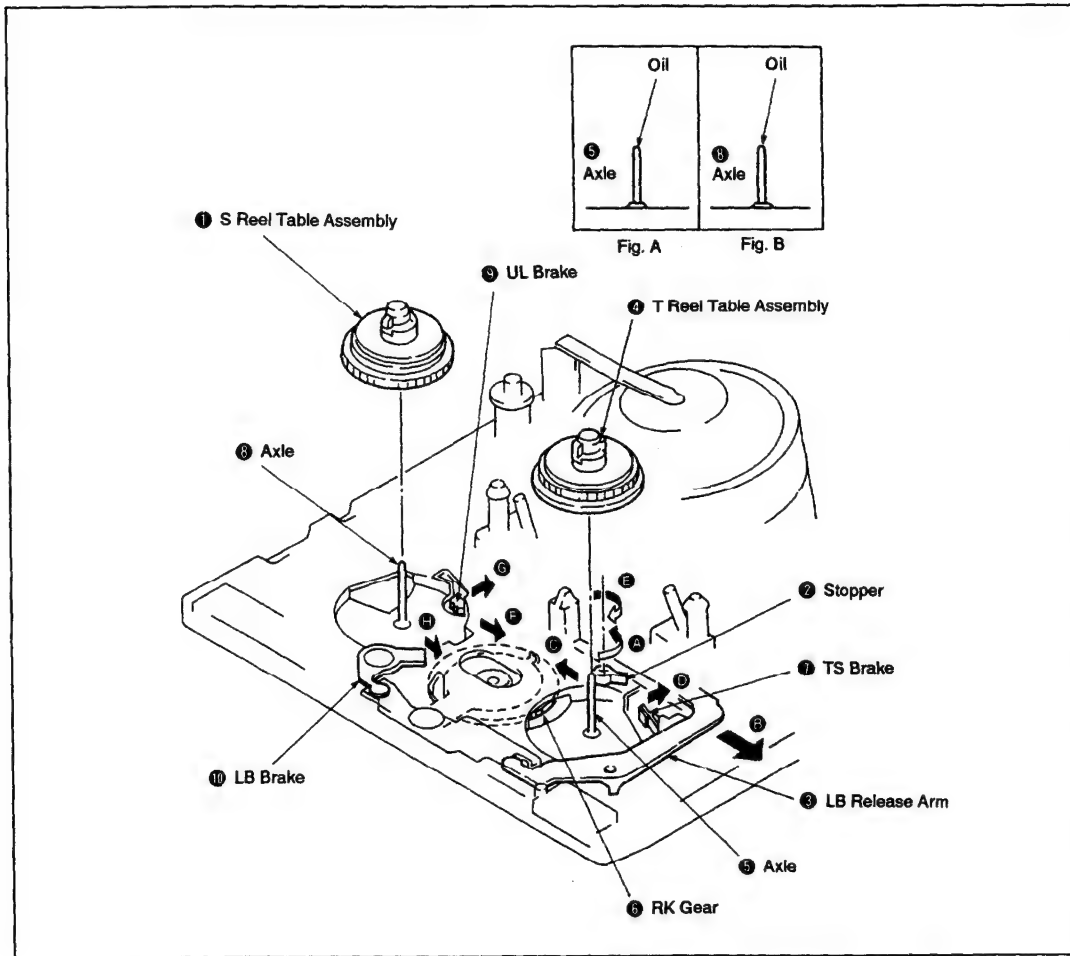


Fig. 3-11.

3-11. TENSION REGULATOR BAND ASSEMBLY, TENSION REGULATOR ARM ASSEMBLY

1. Removal (See Fig. 3-12.)

- 1) Remove the TL holding plate as described in section 3-5.
- 2) Remove the screw ①.
- 3) Using a thin screwdriver or the like, remove the tension regulator band assembly ④ from the axle ③ of tension regulator arm assembly ②.
- 4) Remove the tension spring ⑤.
- 5) Remove the stopper washer ⑥ from the back of the mechanism chassis, then remove the tension regulator arm assembly ②.
- 6) Open the claw ⑦, then remove the adjust arm ⑧.

Note: When removing the tension regulator band assembly ④, take care not to twist or bend it, and not to touch the felt surface ⑨.

2. Installation (See Fig. 3-12.)

- 1) Engage the adjust arm ⑧ in the position shown in Fig. A, then close the claw ⑦.
- 2) Apply half a drop of oil to the hole ⑩.
- 3) Mount the tension regulator arm assembly ②, then insert it into the slot ⑪ so that the ② part comes to the arrow A side of the switch lever assembly (See Fig. B).

- 4) While holding the tension regulator arm assembly ② from the mechanism chassis front, secure it with the stopper washer ⑥ from the back.
- 5) Hook the R hook of the tension spring ⑤ to the adjust arm ⑧ as shown in the figure, then hook the opposite end to the tension regulator arm assembly ②.
- 6) Mount the tension regulator band assembly ④ onto the axle ③ of tension regulator arm assembly ②, and place it so that the felt surface ⑨ comes against the shaded portion of the S reel table assembly ⑬.
- 7) Mount the tension regulator plate ⑫ of the tension regulator band assembly ④ so that it is aligned with the dowel ⑭ of the mechanism chassis, then secure it temporarily with the screw ①.
- 8) Mount the TL holding plate as described in section 3-5.
- 9) Adjust tension regulator FWD position as described in section 3-12.
- 10) Perform adjust arm adjustment as described in section 3-22.

Note: When mounting the tension regulator band assembly ②, take care not to twist or bend it, and not to touch the felt surface ⑨.

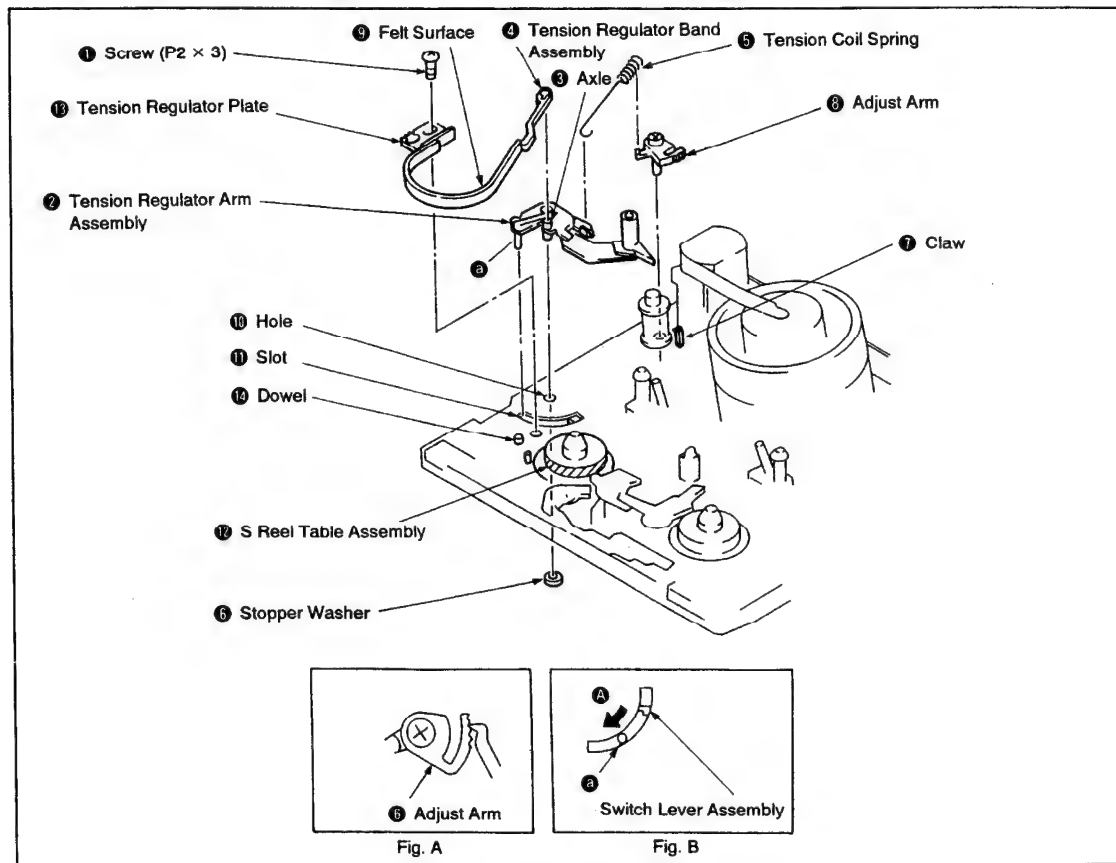


Fig. 3-12.

3-12. TENSION REGULATOR FWD POSITION PRESET (See Fig. 3-13.)

- 1) Load a cassette tape and set the **[FWD]** mode.
- 2) Confirm whether the distance between ❶ part of the tension regulator arm and the groove ❷ of the chassis is 1.1 ± 0.3 mm. If this distance is not within the specified range, remove the cassette tape and perform the following adjustment.
- 3) Loosen the fixing screw ❹ of the tension regulator band assembly ❸.
- 4) Slide the tension regulator plate ❺ in the direction of the arrow **A** if the measured distance is over the specified range, and in the direction of the arrow **B** if it is under that range. Then, fix it with the screw ❹.
- 5) Repeat steps 1) and 2) and confirm that the distance is within the specified range.

Note: Use a cassette with the tape advanced halfway.

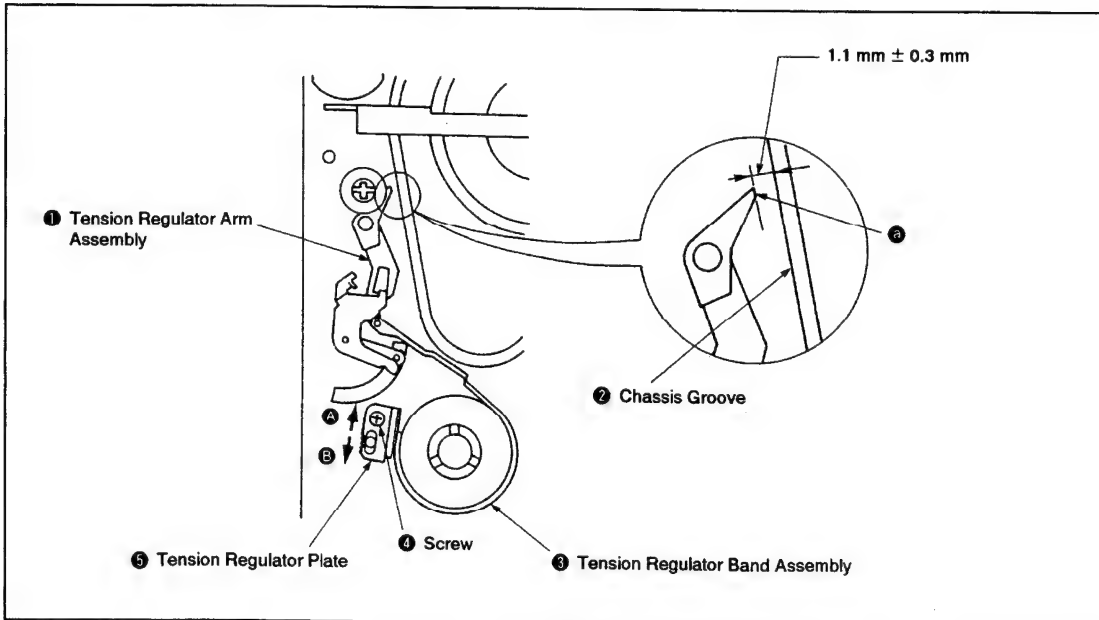


Fig. 3-13.

1. Removal (See Fig. 3-14.)

- Note:**
- When removing the drum assembly ⑥ from the mechanism chassis, take care not to cut the flexible board ① or the harness.
 - Take care not to touch the head tip ⑨.

- 1) Insert part ④ of the dew sensor ⑧ into the notch ⑪ of the mechanism chassis, then secure it with the screw ⑦.
- 2) Mount the connector ⑩.
- 3) Clamp the harness ⑮ of the dew sensor ⑧ with the reinforcing the claw ⑯ of the plate SS assembly (See Fig. A).
- 4) Insert the connector ② and the flexible board ① into the hole ⑫ of the mechanism chassis, align the drum assembly ⑬ with the two dowels ⑬ and secure it with the three screws ⑤.
- 5) Align the axle ground terminal ② with the two dowels ⑭ of the mechanism chassis and secure it with the screw ③.
- 6) Mount the guide guard assembly as described in section 3-2.
- 7) Mount the two connectors ② and the flexible board ①.

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3-14. EJECT LEVER, SWITCH LEVER ASSEMBLY, PINCH ROLLER SUB ARM ASSEMBLY

1. Removal (See Fig. 3-15.)

- 1) Remove the DC motor (capstan motor) as described in section 3-3.
- 2) Set the **STOP** mode.
- 3) Remove the claw ①, then remove the eject lever ②.
- 4) Remove the stopper washer ③, then remove the switch lever assembly ④.
- 5) Remove the pinch roller load spring ⑤.
- 6) Remove the stopper washer ⑥, then remove the pinch roller sub arm assembly ⑦.

2. Installation (See Fig. 3-15.)

- 1) Grease the axle ⑧ (See Fig. A).
- 2) Assemble by inserting ⑧ part of the pinch roller sub arm assembly ⑦ into the slot ⑨, then insert the pin ⑩ into the loading lever assembly notch ⑪.
- 3) Secure with the stopper washer ⑥.

- 4) Mount the pinch roller load spring ⑤ by catching its ⑫ end between the claw ① and the chassis side and its ⑬ end to the claw ①.
- 5) Apply half a drop of oil to the axle ⑭ (See Fig. B).
- 6) Align the groove ⑮ of the switch lever assembly ④ with the mode detector switch protrusion ⑯, mount it on the axle ⑭, then insert the pin ⑩ into the drive gear (left) assembly ⑰ outer groove.
- 7) Secure with the stopper washer ③.
- 8) Mount the eject lever ② and close the claw ①.
- 9) Mount the DC motor (capstan motor) as described in section 3-3.

Note: When mounting the switch lever assembly ④ onto the axle ⑭ with the tension regulator arm assembly installed, set the pin ⑩ to the arrow ② side of the switch lever assembly ④.

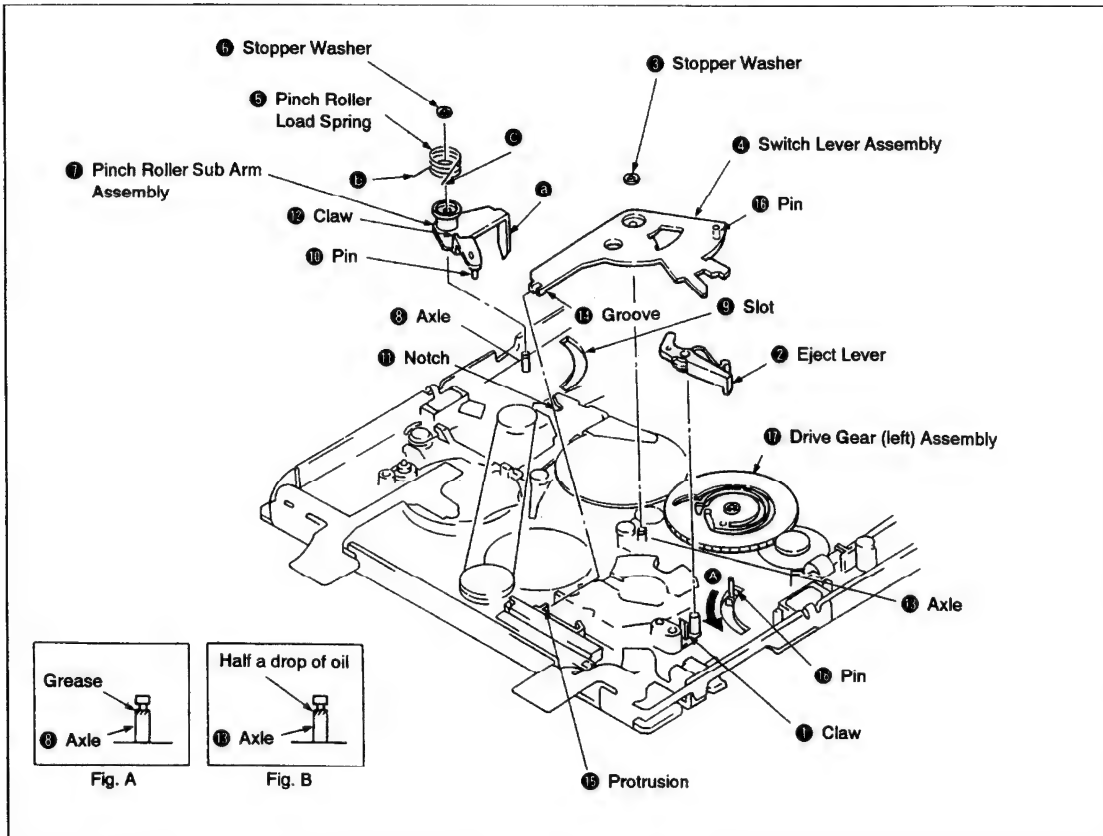


Fig. 3-15.

3-15. TIMING BELT (L) , RC GEAR ASSEMBLY, LOADING LEVER ASSEMBLY, TIMING BELT (S), CONNECTING GEAR ASSEMBLY

1. Removal (See Fig. 3-16.)

- 1) Remove the DC motor (capstan motor) as described in section 3-3.
- 2) Remove the pinch roller sub arm assembly as described in section 3-14.
- 3) Set the **STOP** mode.
- 4) Remove the stopper washer ①, then remove the RC gear assembly ② from the axle ④ with the timing belt (L) ③ attached.
- 5) Remove the timing belt (L) ③ from the idler pulley assembly ⑤.
- 6) Remove the stopper washer ⑥ and remove the loading lever assembly ⑧ while pushing the claw ⑦ in the direction of the arrow A.
- 7) Turn the stopper ⑨ approx. 90° in the direction of the arrow B.
- 8) Remove the connecting gear assembly ⑪ from the axle ⑩ with the timing belt (S) ⑩ attached.
- 9) Remove the timing belt (S) ⑩ from the idler pulley assembly ⑤.

Note: When removing the connecting gear ⑪, take care not touch the flange section ⑬.

2. Installation (See Fig. 3-16.)

- 1) Apply half a drop of oil to the axle ⑩ (See Fig. F).
- 2) Hook one end of the timing belt (S) ⑩ onto the connecting gear assembly ⑪ and the other end onto gear ④ of the idler pulley assembly ⑤. (Refer to the figure.)
- 3) Mount the connecting gear assembly ⑪ with the timing belt (S) ⑩ attached to the axle ⑩.
- 4) Turn the stopper ⑨ in the direction of the arrow C as far as it will go.
- 5) Apply half a drop of oil to the axle ⑫ (See Fig. A).
- 6) Fit the loading lever assembly ⑧ to the axle ⑫, secure the ⑬ part with the claw ⑦ and place the pin ⑬ into the groove of the drive gear (right) assembly ⑮.
- 7) Install the stopper washer ⑥.
- 8) Place the timing belt (L) ③ around the gears of the RC gear assembly ② indicated in Fig. B, and its opposite side around the gear ④ of the idler pulley assembly ⑤. (See Fig. E.)
- 9) Mount the RC gear assembly ② onto the axle ④ with the timing belt (L) ③ attached, and engage it with the gear of the RK gear assembly ⑮.
- 10) Install the stopper washer ⑥.
- 11) Grease parts of the loading lever assembly ⑧ indicated in Fig. C.
- 12) Mount the pinch roller sub arm assembly as described in section 3-14.
- 13) Mount the DC motor (capstan motor) as described in section 3-3.

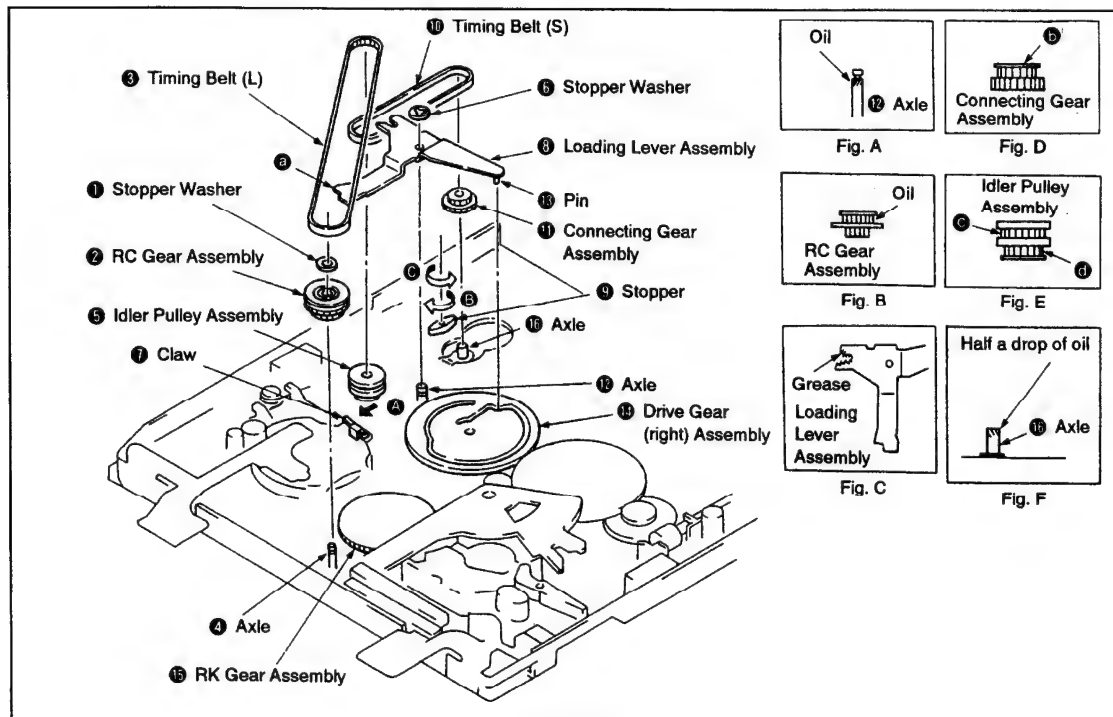


Fig. 3-16.

3-16. IDLER PULLEY, TS BRAKE ASSEMBLY, LB GEAR ASSEMBLY, RK GEAR ASSEMBLY

1. Removal (See Fig. 3-17.)

- 1) Remove the DC motor (capstan motor) as described in section 3-3.
- 2) Remove the switch lever assembly as described in section 3-14.
- 3) Remove the timing belt (L), the RC gear assembly, the loading lever assembly, the timing belt (S) and the connecting gear assembly described in section 3-15.
- 4) Set the **STOP** mode.
- 5) Remove the stopper washer ①, then remove the idler pulley ②.
- 6) Open the claw ③, then remove the TS brake assembly ④.
- 7) Remove the torsion coil spring (LB) ⑤.
- 8) Remove the stopper washer ⑥, then remove the LB gear assembly ⑦.
- 9) Remove the RK gear assembly ⑧.

Note: When removing the idler pulley ②, take care not to touch the flange section ②. (See Fig. C.)

2. Installation (See Fig. 3-17.)

- 1) Apply half a drop of oil to the axle ⑨ (See Fig. A).
- 2) Mount the RK gear assembly ⑧ onto the axle ⑨, keeping it in horizontal position.
- 3) Apply half a drop of oil to the axle ⑩ (See Fig. B).
- 4) Mount the LB gear assembly ⑦ onto the axle ⑩ and secure it with the stopper washer ⑥.
- 5) Insert the torsion coil spring (LB) ⑤ into the axle ⑪, then hook it to the mechanism chassis notch ⑫ and to the tab ⑬.
- 6) Mount the TS brake assembly ④ and close the claw ③.
- 7) Apply half a drop of oil to the axle ⑬ (See Fig. D).
- 8) Mount the idler pulley ② onto the axle ⑬, then secure it with the stopper washer ①.
- 9) Mount the timing belt (L), the RC gear assembly, the loading lever assembly, the timing belt (S) and the connecting gear assembly as described in section 3-15.
- 10) Mount the switch lever assembly as described in section 3-14.
- 11) Mount the DC motor (capstan motor) as described in section 3-3.

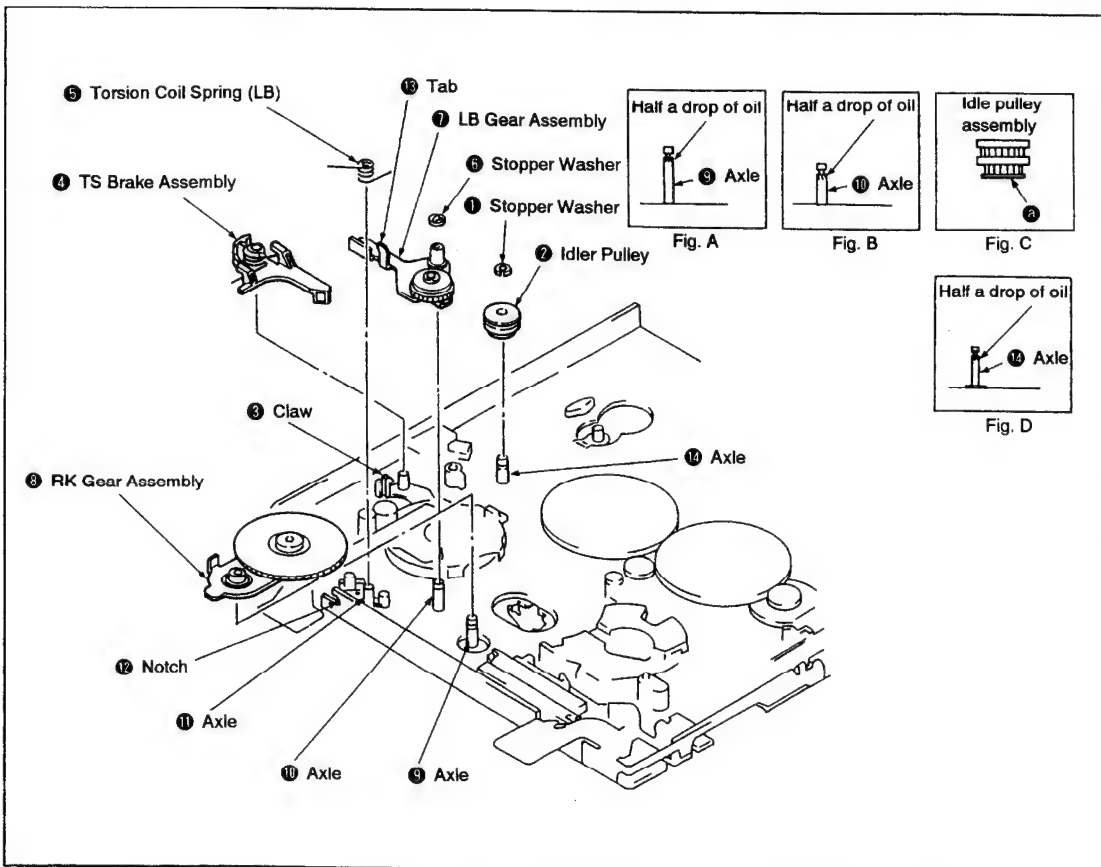


Fig. 3-17.

3-17. UL GEAR, UL BRAKE, UL ARM, LB PLATE SPRING

1. Removal (See Fig. 3-18.)

- 1) Remove the switch lever assembly as described in section 3-14.
- 2) Remove the stopper washer ①, then remove the UL gear ②.
- 3) Remove the UL arm ③, the 1.6 mm-diameter poly washer ④ and the LB plate spring ⑤.
- 4) Remove the UL brake ⑥.

2. Installation (See Fig. 3-18.)

- 1) Mount the UL brake ⑥.
- 2) Apply half a drop of oil to the axle ⑦ (See Fig. A).
- 3) Mount the LB plate spring ⑤ to the axle ⑦ as shown in Fig. B, then install the 1.6mm-diameter poly washer ④.
- 4) Mount the UL arm ③ to the axle ⑦ so that the protrusion ⑧ comes into the groove ⑨ of the UL brake ⑥.
- 5) Mount the UL gear ② to the axle ⑦ and engage it with the gear of the drive gear (left) assembly ⑩.
- 6) Install the stopper washer ①.
- 7) Mount the switch lever assembly as described in section 3-14.

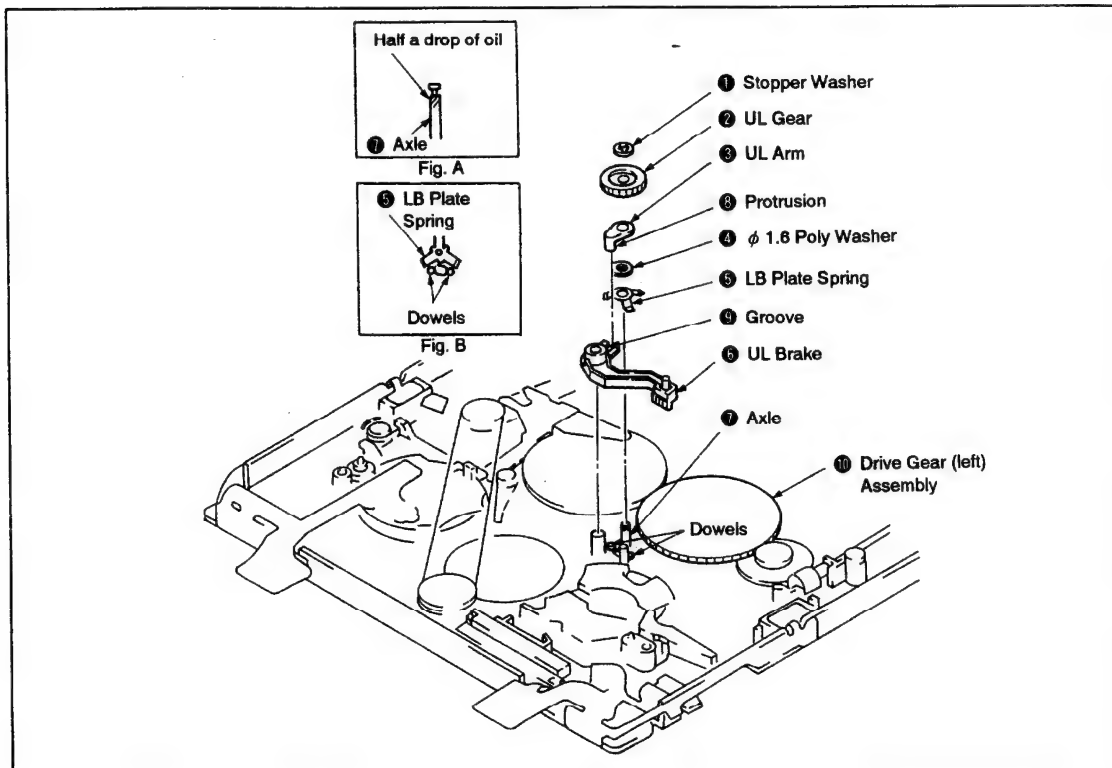


Fig. 3-18.

3-18. COASTER (RIGHT) ASSEMBLY, DRIVE GEAR (RIGHT) ASSEMBLY

1. Removal (See Fig. 3-19.)

- 1) Remove the DC motor (capstan motor) as described in section 3-3.
- 2) Remove the drum unit as described in section 3-13.
- 3) Remove the switch lever assembly as described in section 3-14.
- 4) Remove the timing belt (L), the RC gear assembly and the loading lever assembly as described in section 3-15.
- 5) Set the **STOP** mode.
- 6) Remove the screw ①, then remove the coaster plate spring ② and the coaster (right) assembly ③.
- 7) Remove the two screws ④, then remove the reinforcing plate TT ⑤.
- 8) Remove the stopper washer 1.5 ⑥, then remove the drive gear (right) assembly ⑦.

2. Installation (See Fig. 3-19.)

- 1) Grease the points of the mechanism chassis shown in Fig. A.
- 2) Apply half a drop of oil to the axle ⑩ (See Fig. F).
- 3) Grease pin ⑨, axle ⑩ and dowel ⑪ of the coaster (right) assembly ③ (See Fig. D).
- 4) Mount by aligning the pin ⑨ and the axle ⑩ with the slot ⑫ of the mechanism chassis.
- 5) Move the brake release arm ⑬ in the direction of the arrow ⑭ to put it out of the way.

- 6) Mount the drive gear (right) assembly ⑦ to the axle ⑩, and engage it with the drive gear (left) assembly ① as shown in Fig. B.
- 7) Align the ② part with the ③ part, and the hole ④ with the pin ⑤ of the coaster (right) assembly ③.
- 8) Install the stopper washer 1.5 ⑥.
- 9) Mount by aligning the coaster plate spring ⑦ with the axle ⑩ of the coaster (right) assembly ③ and pin ⑤, then secure with the screw ⑧.
- 10) Mount the reinforcing plate TT ⑤ aligning it with the dowel ⑪, then tighten the two screws ④ in the indicated order.
- 11) Grease the points indicated in Figs. C and E.
- 12) Mount the timing belt (L), the RC gear assembly and the loading lever assembly as described in section 3-15.
- 13) Mount the switch lever assembly as described in section 3-14.
- 14) Mount the drum unit as described in section 3-13.
- 15) Mount the DC motor (capstan motor) as described in section 3-3.

Note:

- Screw ⑧ should be tightened with a tightening torque of approx. 500g*cm. If tightened too much, the coaster (right) assembly ③ and the coaster plate spring ⑦ will be deformed.
- After installing, be sure to perform tape path adjustment as described in section 4.

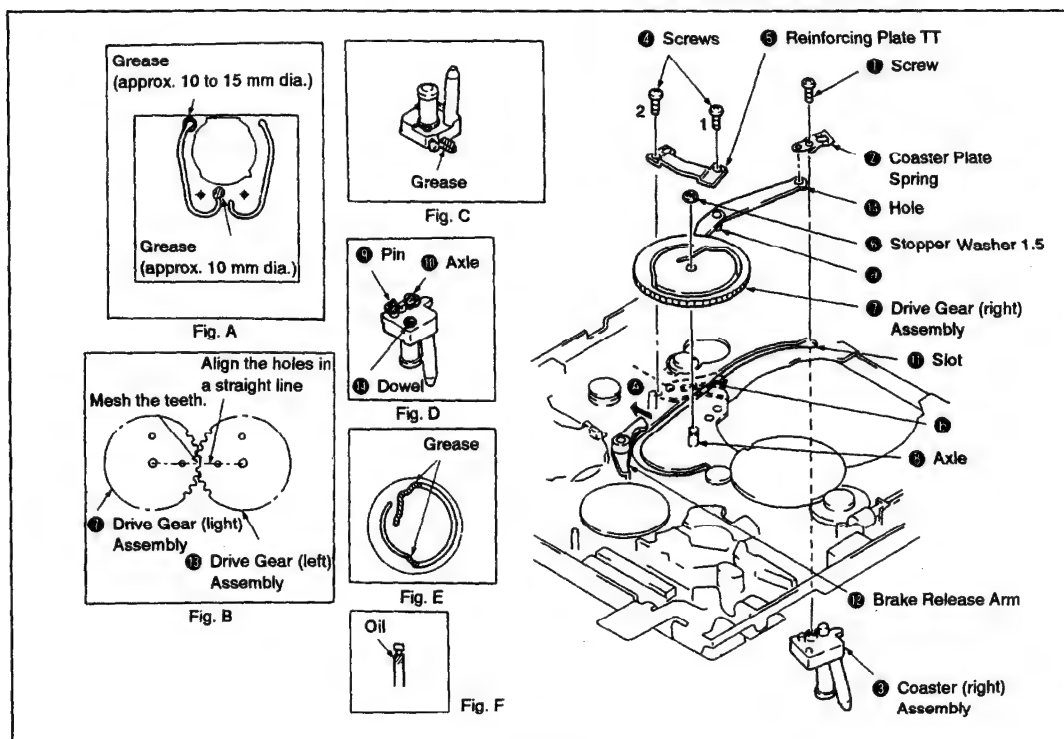


Fig. 3-19.

3-19. COASTER (LEFT) ASSEMBLY, DRIVE GEAR (LEFT) ASSEMBLY

1. Removal (See Fig. 3-20.)

- 1) Remove the DC motor (capstan motor) as described in section 3-3.
- 2) Remove the drum assembly as described in section 3-13.
- 3) Remove the switch lever assembly and the pinch roller sub-arm assembly as described in section 3-14.
- 4) Remove the timing belt (L), the RC gear assembly and the loading lever assembly as described in section 3-15.
- 5) Remove the coaster (right) assembly and the drive gear (right) assembly as described in section 3-18.
- 6) Remove the screw ①, then remove the coaster plate spring ② and the coaster (left) assembly ③.
- 7) Remove the two screws ④, then remove the reinforcing plate SS assembly ⑤.
- 8) Remove the stopper washer 1.5 ⑥, then remove the drive gear (left) assembly ⑦.

2. Installation (See Fig. 3-20.)

- 1) Grease the points of the mechanism chassis shown in Fig. A.
- 2) Apply half a drop of oil to the axle ⑧ (See Fig. E).
- 3) Grease pin ⑨, axle ⑩ and dowel ⑪ of the coaster (left) assembly ③ (See Fig. B).
- 4) Mount by aligning the pin ④ and the axle ⑩ with the slot ⑪ of the mechanism chassis.
- 5) Fit the drive gear (left) assembly ⑦ to the axle ⑧, and mount so that the gear engages with the wheel gear ⑫ and the UL gear ⑬.

- 6) Align the ⑬ part with the slot ⑪, and the hole ⑭ with the pin ④ of the coaster (left) assembly ③.
- 7) Install the stopper washer 1.5 ⑥.
- 8) Mount by aligning the coaster plate spring ② with the axle ⑩ and pin ④ of the coaster (left) assembly ③, then secure with the screw ①.
- 9) Mount the reinforcing plate SS assembly ⑤ aligning it with the dowel ⑪, then tighten the two screws ④ in the indicated order.
- 10) Grease points indicated in Figs. C and D.
- 11) Mount the coaster (right) assembly and the drive gear (right) assembly as described in section 3-18.
- 12) Mount the timing belt (L), the RC gear assembly and the loading lever assembly as described in section 3-15.
- 13) Mount the switch lever assembly and the pinch roller sub arm assembly as described in section 3-14.
- 14) Mount the drum assembly as described in section 3-13.
- 15) Mount the DC motor (capstan motor) as described in section 3-3.

Note:

- Screw ① should be tightened with a tightening torque of approx. 500g·cm. If tightened too much, the coaster (right) assembly ③ and the coaster plate spring ② will be deformed.
- After installing, be sure to perform tape path adjustment as described in section 4.

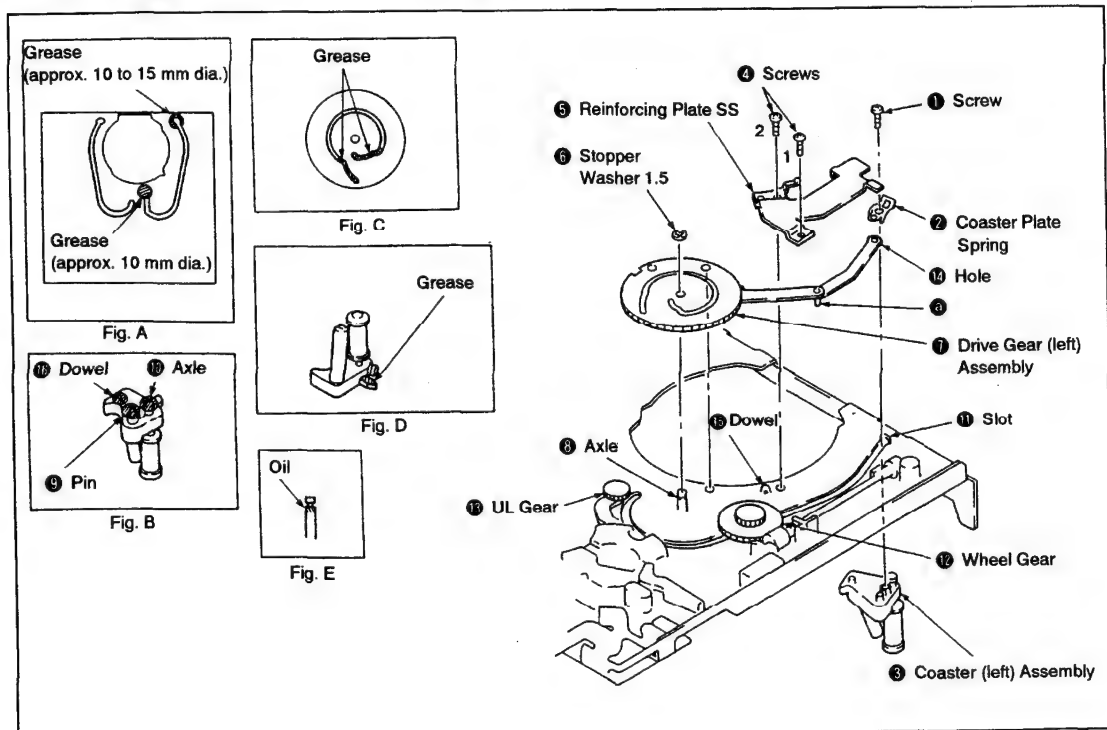


Fig. 3-20.

3-20. LOADING MOTOR, BRAKE RELEASE ARM, WHEEL GEAR, WORM ASSEMBLY

1. Removal (See Fig. 3-21.)

- 1) Remove the DC motor (capstan motor) as described in section 3-3.
- 2) Remove the switch lever assembly and the pinch roller sub arm assembly as described in section 3-14.
- 3) Remove the timing belt (L), the RC gear assembly and the loading lever assembly as described in section 3-15.
- 4) Remove the drive gear (right) assembly as described in section 3-18.
- 5) Remove the drive gear (left) assembly as described in section 3-19.
- 6) Remove the two screws ①, then remove the loading motor assembly ②.
- 7) Remove the brake release arm ③.
- 8) Remove the stopper washer ④, then remove the wheel gear ⑤.
- 9) Remove the worm assembly ⑥ from the six claws ⑦.

2. Installation (See Fig. 3-21.)

- 1) Mount the worm assembly ⑥, matching it to the six claws ⑦.
- 2) Grease the shaded parts of the worm assembly ⑥ (five places) (see Fig A).
- 3) Apply half a drop of oil to the axle ⑧ (See Fig B).
- 4) Fit the wheel gear ⑤ to the axle ⑧ and engage it with the gear of the worm assembly ⑥.
- 5) Mount the brake release arm ③.
- 6) Grease the whole perimeter of the gear of the loading motor assembly ②.
- 7) Align the loading motor assembly ② with the mechanism chassis and secure it with the two screws ①.
- 8) Mount the drive gear (left) assembly as described in section 3-19.
- 9) Mount the drive gear (right) assembly as described in section 3-18.
- 10) Mount the timing belt (L), the RC gear assembly and the loading lever assembly as described in section 3-15.
- 11) Mount the switch lever assembly and the pinch roller sub arm assembly as described in section 3-14.
- 12) Mount the DC motor (capstan motor) as described in section 3-3.

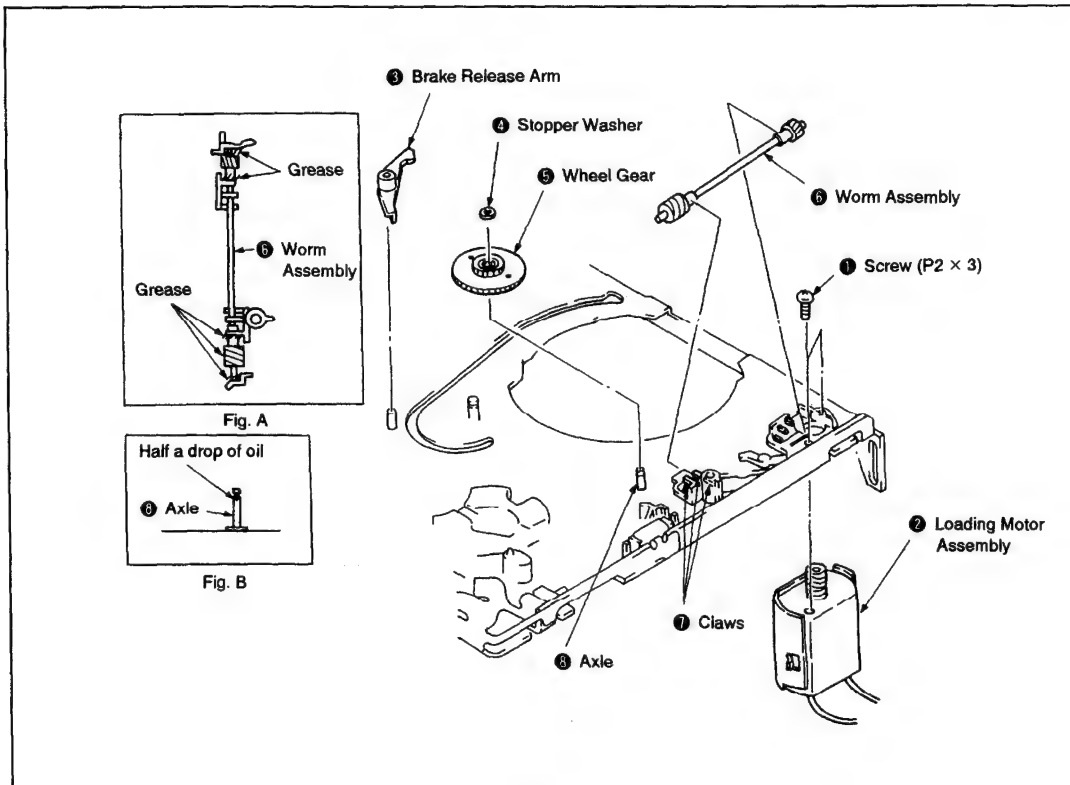


Fig. 3-21.

3-21. ROTARY UPPER DRUM REPLACEMENT

1. Removal

- If possible, make a recording before removal.
- 1) Detach the six solderings ④, then use a pair of tweezers or the like to confirm that the terminals passing through the board holes from below can move freely.
- 2) Remove the two screws ① (See Fig. 3-22).
- 3) Mount the jig ④ (Ref. No. J-7) with the two supplied screws ②, then screw the attached hexagon socket screws ③ to the jig ④. The rotary upper drum ⑤ will move upward and come off (See Fig. 3-23).

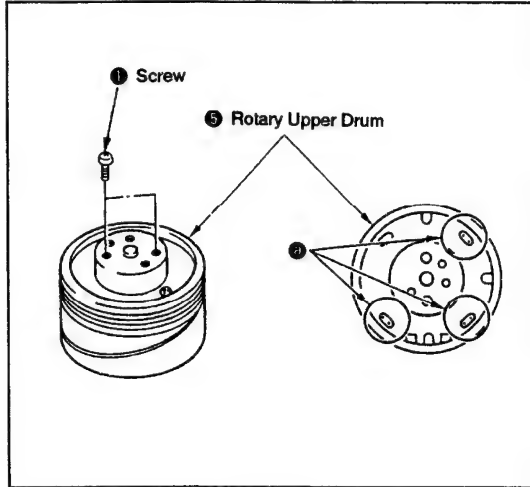


Fig. 3-22.

2. Installation

- 1) Wipe clean the flange surface and the rotary upper drum ⑤ surface that makes contact with it, and confirm that they are free from dirt and scratches.
 - 2) Insert the jig ④ (Ref. No. J-7) into the drum positioning hole, then set the rotary upper drum ⑤ by passing the jig through its positioning hole ⑥.
- Note:** Confirm that the terminals ⑧ protrude slightly from the rotary upper drum board holes (See Fig. 3-24).
- 3) Remove the jig ④ and push down the rotary upper drum ⑤ gently by hand. If it does not go all the way down, secure it temporarily by tightening the two hexagon socket screws ③ alternately.
 - 4) Insert the jig ④ into the positioning hole ⑥ again and confirm that it goes in smoothly. If it does not, loosen the two screws ③, repeat step 3 of the Removal paragraph and restart the setting procedure.
 - 5) Tighten the screws ③.
 - 6) Solder the terminals ⑧ (⑧ in Fig. 3-22).

Note: Take care that no solder flows below the board.

Note: After installing, be sure to perform tape path adjustment as described in section 4.

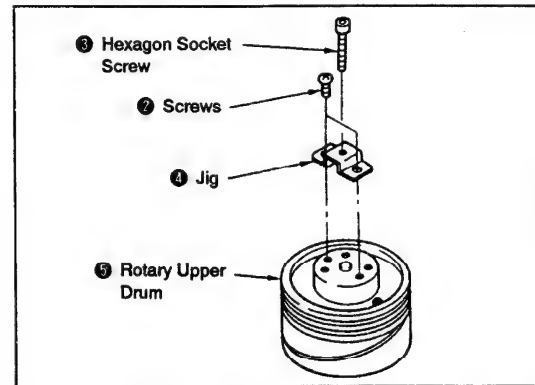


Fig. 3-23.

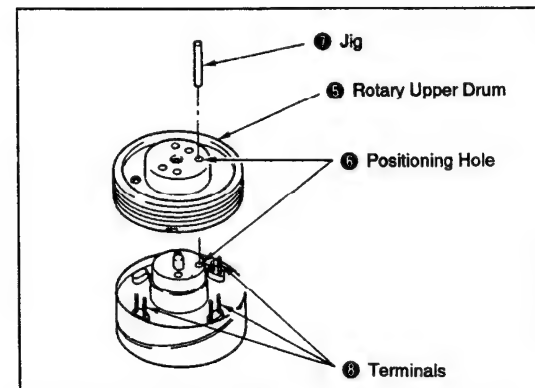


Fig. 3-24.

3-22. FWD BACK TENSION (See Fig. 3-25.)

- 1) Set the torque cassette (Ref. No. J-6).
- 2) Set the FWD mode and confirm that S reel table torque value is within 9 to 13 g*cm.
- 3) If the torque value does not meet the specification, adjust the adjust arm ①.

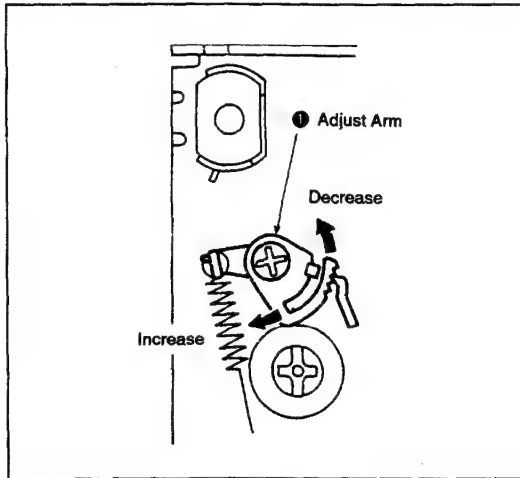


Fig. 3-25.

3-23. REEL TORQUE CHECK

- 1) Set the torque cassette.
- 2) Set the FWD mode and confirm that T reel table torque value is within 7 to 15 g*cm.
- 3) Set the REV mode and confirm that S reel table torque value is within 29 ± 6 g*cm.
- 4) Set the REV mode and confirm that T reel table torque value is within 13 to 25 g*cm.
- 5) If a torque value does not meet the specifications above, replace the corresponding reel table.

4. TAPE PATH ADJUSTMENT

[The Track Shift Mode]

In the 8 mm video system, instantaneous tape speed control is performed using four kinds of pilot signals, and high-precision tracking is achieved through the ATF (Automatic Track Finding) system. This makes a tracking control knob unnecessary and allows for precise tracing.

On the other hand, however, tape path adjustment presents some difficulties when the ATF system is used. Namely, since the ATF system will automatically compensate to some degree for head tracing errors, thorough adjustment is not possible.

This can be solved by setting the track shift mode for tracking fine adjustment. ATF will be compulsorily activated, shifting the tracking amount by a fixed amount (approx. 1/4) and thus making tracking fine adjustment easy. Furthermore, no track shift jigs are required.

4-1. TRACK SHIFT MODE SETTING

[Setting Procedure]

- Connect the TEST A and TEST B terminals to the COM terminal.

Example:

NTSC GV-8

PAL GV-8E

Connect Pins ① and pin ③ of CN017 on the
{ SV-34 board (GV-8) } to pin ② of it. (See Fig. 4-1)
{ SV-35 board (GV-8E) }

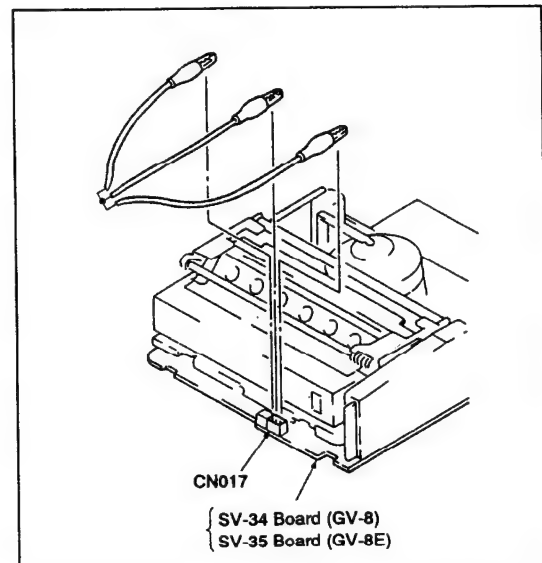


Fig. 4-1.

[Note on Adjustment of No.7 Guide (TG-7)]

The height adjustment screw for No.7 guide (TG-7) is located at some distance from the guide (refer to Fig. 4-2).

Therefore, when performing section 4-6. No.7 Guide (TG-7) Adjustment it is convenient to use the alignment tape for tracking (Ref. No. J-5), modified as follows, and perform adjustment in playback mode.

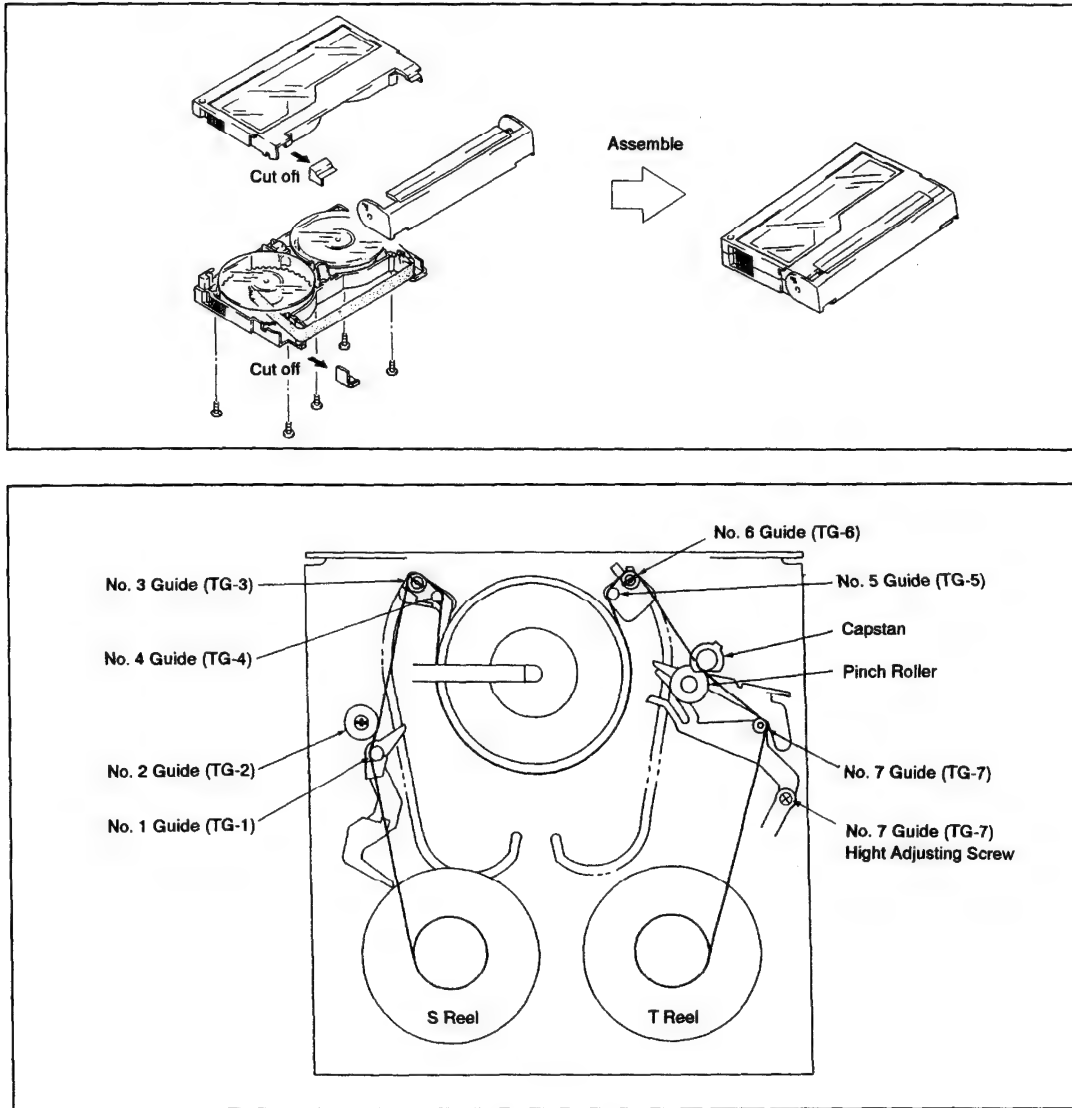


Fig. 4-2.

4-2. PREPARATIONS FOR ADJUSTMENT

- 1) Clean tape path surfaces (tape guides, drum, capstan shaft, pinch roller) (See Fig. 4-2).
- 2) Connection of oscilloscope and output method of waveform.

CH 1: RF signal output of the drum head (V RF OUT)

Method for signal output:

Short-circuit the external trigger output (RF SW. P) and GND.

Example:

NTSC GV-8

PAL GV-8E

CH 1: Pin ③ (V RF OUT) of CN018 on the

{ SV-34 board (GV-8)

{ SV-35 board (GV-8E)

Method for signal output:

Short-circuit pin ① (GND) and pin ② (RF SW.P)

of CN018 on the

{ SV-34 board (GV-8)

{ SV-35 board (GV-8E)

- 3) Play back the alignment tape for tracking adjustment (Ref. No. J-5).
- 4) Confirm that both the entrance and exit side RF waveforms of the oscilloscope are flat (See Fig. 4-4). If they are not, adjust as follows.

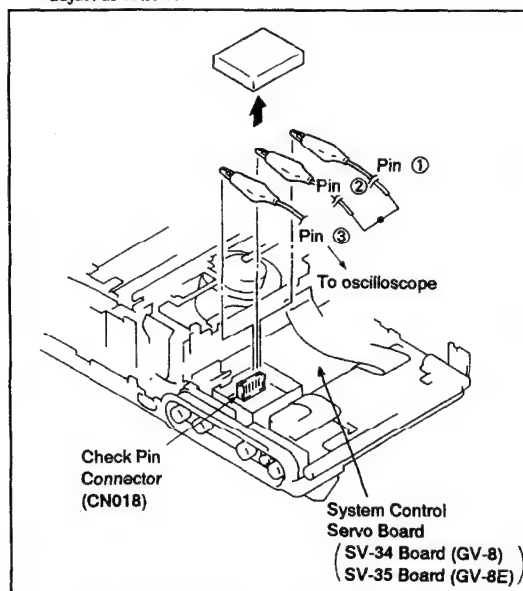


Fig. 4-3.

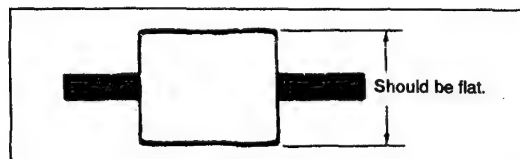


Fig. 4-4.

4-3. TRACKING ADJUSTMENT (See Fig. 4-5.)

- 1) Play back the alignment tape for tracking adjustment.
- 2) Pass a hexagonal wrench, screwdriver (Ref. No. J-11) or the like through the hole ①, loosen the lock screw ② a little, then make the entrance side waveform flat by turning the No. 3 guide (TG-3) ③.
- 3) Pass a hexagonal wrench, screwdriver or the like through the hole ④, loosen the lock screw ⑤ a little, then make the exit side waveform flat by turning the No. 6 guide (TG-6) ⑥.

Note: Take care not to loosen lock screws too much, since guides come loose easily.

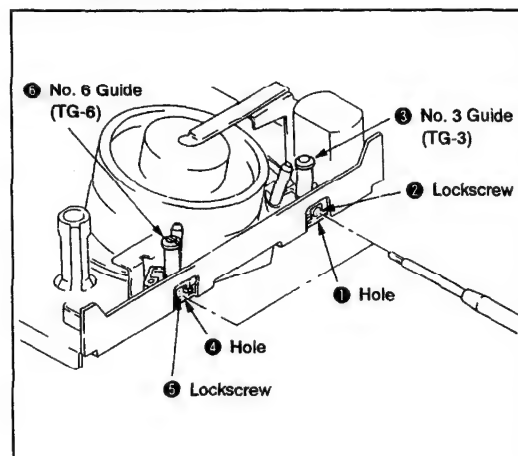


Fig. 4-5.

4-4. TRACKING FINE ADJUSTMENT (See Figs. 4-5. and 4-6.)

- 1) Play back the alignment tape for tracking adjustment and set the track shift mode.
- 2) Confirm whether the waveform is flat. If it is not, turn the No. 3 (TG-3) and No. 6 (TG-6) guides so that it becomes flat.
- 3) Fix the No. 3 guide ③ by tightening its lock screw ②. Then confirm that the entrance side waveform has not changed.
- 4) Fix the No. 6 guide ⑥ by tightening its lock screw ⑤. Then confirm that the exit side waveform has not changed.

Note: The set screws ② and ⑤ should be tightened with a tightening torque of approx. 200g·cm \pm 10%.
If tightened too much, there is danger of damaging the thread.

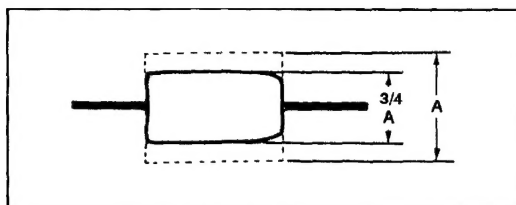


Fig. 4-6.

4-5. No. 2 GUIDE (TG-2) ADJUSTMENT

When the No. 2 guide has been turned or replaced, perform height presetting before this adjustment.

4-5-1. No. 2 Guide (TG-2) Height Presetting (See Fig. 4-7.)

- 1) Adjust the height from the mechanism chassis upper surface to the TG-2 upper flange ① upper surface to 18.6 mm by rotating the TG-2 upper flange ①.

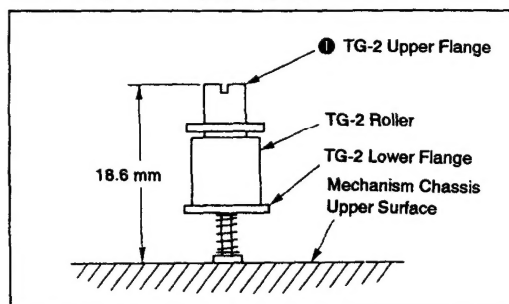


Fig. 4-7.

[Reference]

This U mechanism is equipped with four adjustable guides (TG-2, 3, 6 and 7). To raise or lower the respective guide rotate the corresponding adjustment screw as shown below.

Guide	Guide adjustment	Rotating direction of adjustment screw
TG-2, 3, 6	Raise	Counterclockwise
	Lower	Clockwise
TG-7	Raise	Counterclockwise
	Lower	Clockwise

4-5-2. No. 2 Guide (TG-2) Adjustment (See Figs. 4-8. and 4-9.)

- 1) Play back a thin tape like the P6-120MP, etc. and set the REV mode.
 - 2) Confirm that the tape is not bent at the lower flange ② of the No. 2 guide (TG-2) ① (See Fig. 4-8). If it is, turn the upper flange ③ of the No. 2 guide (TG-2) ① clockwise with a screwdriver, lowering it until the tape is straightened.
 - 3) Play back the alignment tape for tracking adjustment.
 - 4) Perform tracking adjustment and tracking fine adjustment as described in sections 4-3. and 4-4.
 - 5) In the track shift mode, CUE/REV the tape, then play it back and confirm that the RF waveform rises flat within 2 seconds.
 - 6) If the waveform is not normal (See Fig. 4-9), turn the upper flange ③ of the No. 2 guide (TG-2) ① 90° counter-clockwise and repeat step 5.
- Repeat steps 5 and 6 until a normal waveform is obtained. Then, confirm that the tracking waveform has not changed. If it has, perform fine adjustment of entrance side tracking and repeat step 5.

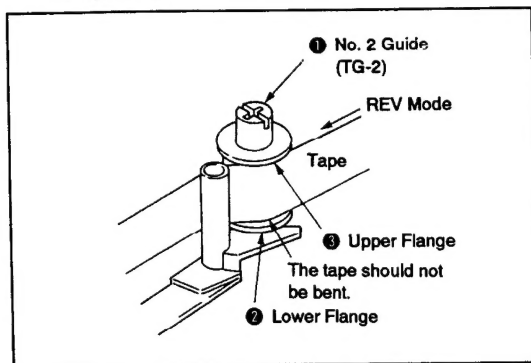


Fig. 4-8.

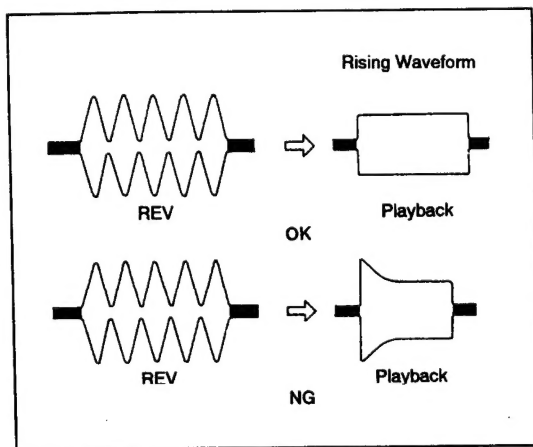


Fig. 4-9.

4-6. No. 7 GUIDE (TG-7) ADJUSTMENT (See Fig. 4-10.)

- 1) Play back the alignment tape for tracking adjustment and set the REV mode.
- 2) Confirm that the tape is not bent between the No. 6 guide (TG-6) ① and the capstan ②. If it is, turn the height adjusting screw ④ of the No. 7 guide (TG-7) ③ until the tape is straightened.
- 3) Set the playback mode again and confirm that the tape is not bent between the capstan ② and the height adjusting screw ④ of the No. 7 guide (specification: 0.5 mm or less). If the tape is bent beyond the specification, turn the No. 7 guide (TG-7) ③ until bending is within the specification (0.5 mm). If in the REV mode tape bending between the No. 6 guide (TG-6) ① and the capstan ② is 0.3 mm or less, adjustment can be considered completed.

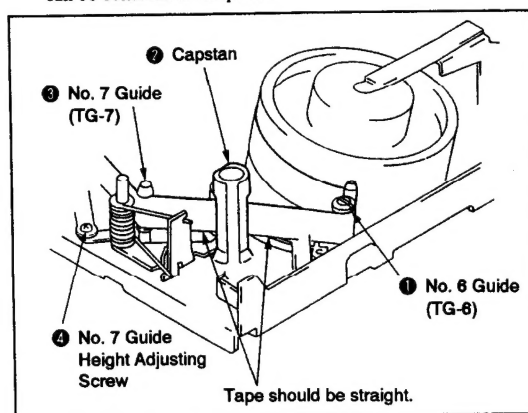


Fig. 4-10.

4-7. CUE AND REV WAVEFORM CHECK (See Fig. 4-11.)

- 1) Play back the alignment tape for tracking adjustment and set the REV mode. Confirm that waveform peaks maintain a constant pitch of 5 seconds or more (See Fig. 4-11). In case pitch is not constant, perform section 4-4. Tracking Fine Adjustment and section 4-6. No. 7 Guide Adjustment.
- 2) Set the CUE mode. Confirm that waveform peaks still maintain a constant pitch of 5 seconds or more (See Fig. 4-11). Otherwise, perform section 4-4. Tracking Fine Adjustment.

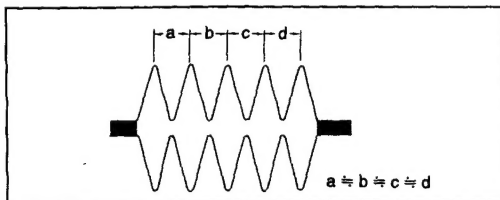


Fig. 4-11.

4-8. CHECK AFTER ADJUSTMENT

4-8-1. Tracking Check

- 1) Confirm that the amplitude of RF waveform is reduced to approx. 3/4 when the track shift mode is set (See Fig. 4-12).
- 2) Then, confirm that the minimum amplitude value (EMIN) is 65% of the maximum value (EMAX) or larger (See Fig. 4-13).
- 3) Confirm that no large fluctuations occur on the waveform (See Fig. 4-14).

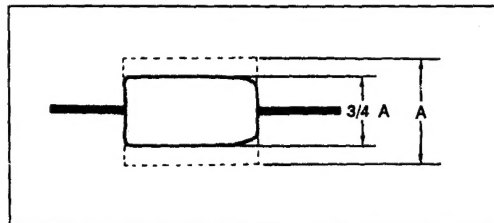


Fig. 4-12.

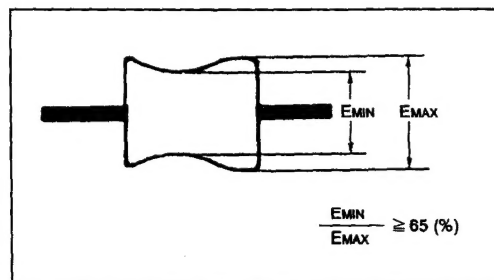


Fig. 4-13.

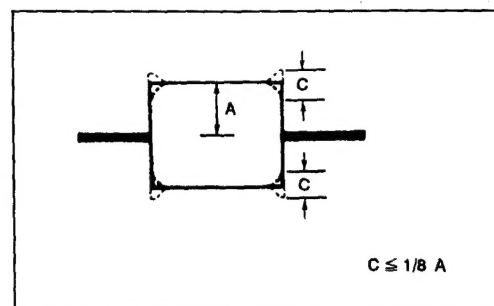


Fig. 4-14.

4-8-2. Rising Check (See Fig. 4-15.)

- 1) Play back the alignment tape for tracking adjustment.
- 2) Cancel the track shift mode.
- 3) Eject the tape, then load it again.
- 4) Set the playback mode and confirm that the RF waveform rises flat within 2 seconds. Also confirm that the tape is not bent around the pinch roller (See Fig. 4-15).
- 5) CUE/REV and FF/REW the tape, then play it back and confirm that the RF waveform rises flat within 2 seconds. Also confirm that the tape is not bent around the pinch roller.
- 6) Repeat steps 3) to 5) once more.

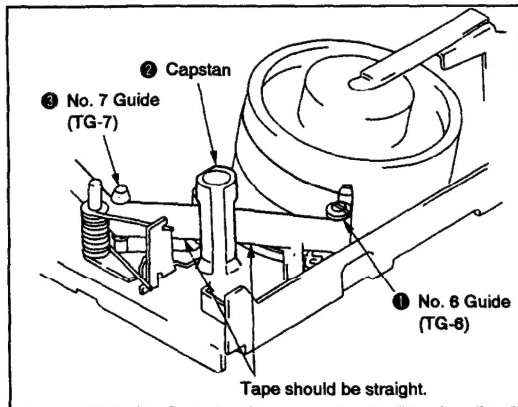


Fig. 4-15.

4-8-3. Tape Path Check (See Fig. 4-16.)

- 1) Play back a thin tape like the P6-120MP (NTSC) or P5-90MP (PAL), etc. and confirm that no tape rising occurs, and that curling is less than 0.3 mm, at the lower flange of the No. 2 guide, the upper flange of the No. 3 guide, the upper flange of the No. 6 guide and the No. 7 guide upper and lower flanges.
- 2) Confirm that no tape rising occurs and that curling is less than 0.3 mm at the flanges of all guide when pressing the FF button in the playback mode to set the CUE mode, or the REW button to set the REV mode.

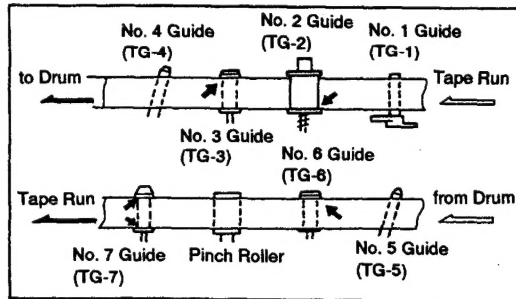


Fig. 4-16.